Does Mode of Foreign Entry Affect Profitability Dynamics? An Evidence from the Turkish Banking Sector

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Abstract

This paper analyzes the effect of foreign entry on the profitability of the Turkish banks by panel estimation models. The dependent variable is net return on assets and net return on equity, which are used interchangeably to measure profitability. The independent variables are composed of bank-specific variables as well as host-country and global factors. In the benchmark model, the effect of foreign entry is captured by dummy variables that classify banks according to their foreign share content, whereas in the alternative model, the estimations are conducted seperately for each mode of foreign entry category. Additionally, the analysis is repeated individually for the periods before and after the global crisis. Estimation results suggest that the significance of the explanatory variables changes depending on the foreign share content. Also, bank-specific variables and global factors are more important, while host-country factors are less important after the global crisis. For future work, other explanatory variables may be added to capture features peculiar to mode of foreign entry. Furthermore, certain variables may be included to seize developments in parent banks' countries, which might affect subsidiary banks. Finally, other bank-specific variables like measures on administrative structure may be useful in estimations.

Keywords: *Foreign Entry, Profitability, Turkish Banks, Host-country Factors, Global Crisis*

JEL Classification: *C23, E44, E52, G01, G21*

Özet - Yabancı Girişi Kârlılık Dinamiklerini Etkiliyor mu? Türk Bankacılık Sektöründen Kanıt

Bu çalışmada yabancı girişinin Türk bankalarının kârlılığı üzerindeki etkileri panel tahmin modelleriyle incelenmektedir. Kârlılığı ölçmek üzere bağımlı değişken olarak varlık getirisi ve özsermaye getirisinin dönüşümlü kullanıldığı çalışmada, açıklayıcı değişkenler bankaya özgü değişkenler ile evsahibi ülke ve küresel ekonomiye ilişkin etkenlerden oluşmaktadır. Baz modelde yabancı payının etkisi kukla değişkenlerle kontrol edilmekte, alternatif modelde ise regresyonlar bankaların yabancı payı kategorisi ayırımına göre tahmin edilmektedir. Ek olarak, analiz küresel kriz öncesi ve sonrası dönemler için tekrarlanmaktadır. Tahmin sonuçları açıklayıcı değişkenlerin anlamlılığının bankaların yabancı payına göre değiştiğini göstermektedir. Ayrıca, küresel kriz sonrasında bankaya özgü değişkenler ve küresel etkenlerin daha anlamlı, ev sahibi ülke etkenlerinin ise daha az anlamlı olduğu görülmektedir. İleriki dönemde yapılacak çalışmalarda, modele yabancı payını yansıtacak açıklayıcı değişkenlerin eklenmesi önerilmektedir. Buna ek olarak, bağlı bankaları etkileyen ev sahibi ülkelerdeki gelişmeleri yansıtacak değişkenlerin de çalışmaya dahil edilmesi gerektiği düşünülmektedir. Son olarak, tahminlere bankaların idari yapısına ilişkin değişkenlerin ilave edilmesinin faydalı olacağı değerlendirilmektedir.

Anahtar Kelimeler: *Yabancı Girişi, Kârlılık, Türk Bankaları, Ev Sahibi Ülke Etkenleri, Küresel Kriz*

JEL Sınıflandırması: *C23, E44, E52, G01, G21*

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1. Introduction

The ownership structure of the banking sector has changed drastically across the globe. This has been driven mainly through privatization of state banks via restructuring programs.[1,2] Concomitantly, many countries attracted massive amount of foreign capital, which caused domestic banks to change their status to foreign ownership.[3] This has been due to the globalization of financial markets that caused banks to expand their global operations and develop growing networks of physical branches and subsidiaries in foreign countries, thereby creating such entities as "multinational" banks (Williams, 1997; De Haas and Van Lelyveld, 2006) or even "global" banks (Cetorelli and Goldberg, 2012).

Foreign entry to the banking sector, either in the form of greenfield investment, takeover or share acquisitions, has major impacts on the domestic banking sector. Analysis of cross-country studies has shown that foreign entry tends to lower intermediation spreads and overhead expenses over time, with subsequent benefits to consumer of financial services (Claessens et al., 2001; Lensink and Hermes, 2004).

Furthermore, increases in foreign bank entry are conjectured to raise competition, and therefore, act to compel domestic banks to operate more efficiently (Terrell, 1986; Levine, 1996; Claessens et al., 2001). Buch (2002), Hasan and Marton (2003), Drakos (2002) and Fries and Taci (2005) demonstrate that the entry of foreign banks creates an environment in which the entire banking system is forced to become more efficient, both directly and indirectly. Greater participation of foreign banks also tends to reduce the probability of a banking crisis, improve the efficiency of domestic banks and boost economic growth indirectly by improving domestic bank efficiency (Demirgüç-Kunt et al., 1998).[4]

The findings reported for the Turkish banking sector are in compliance with the international evidence regarding the impact of foreign entry on the domestic bank-

1 Andrews (2005) discusses that countries opt for privatization in the context of post-crisis restructuring programs. The paper reports over 235 privatizations in more than 65 countries since mid-1970s.

2 Williams and Nguyen (2005), Boubakri et al. (2005), Beck et al. (2005) and Nakane and Weintraub (2005) find evidence for enhanced performance in privatized banks.

3 Central and Eastern European countries have undergone a remarkable transformation since 1990s. This resulted in privatized banking industry that is dominated by foreign banks (Košak and Čok, 2008). Latin American countries also experienced high foreign entry after the financial reforms in 1990s (Barajas et al., 2000). Banking sector in Asian countries attracted foreign investment as well thanks to major reforms, which helped to liberalize and internationalize the domestic financial markets (Unite and Sullivan, 2003; Jeon et al., 2006).

4 Foreign entry may have various impacts on the banking sector. These may be with regards to the stability of the domestic banking system (Gorton and Winton, 1998), the banking system concentration and competition (Barajas et al., 2000; Martinez Peria and Mody, 2004; Sengupta, 2007), the supply and accessibility of credit (Giannetti and Ongena, 2005; Clarke et al., 2001; De Haas and Naaborg, 2006; De Haas and Van Lelyveld, 2006) and the banking efficiency (Fries and Taci, 2005; Bonin et al., 2005; Poghosyan and Borovicka, 2007; Havrylchyk and Jurzyk, 2011).

ing sector. In particular, foreign entry in the Turkish banking sector, which has been observed after liberalization actions in 1980s, has led to higher performance, especially in terms of profitability.[5]

Meanwhile, the Turkish banking sector, which has gone through a major reform in 2002[6], also attracted foreign capital in the last couple years. The substantial foreign entry in the Turkish banking sector had been observed in the form of takeover, thus changing the ownership status of local banks from domestic to foreign. Alternatively, foreign entry in the Turkish banking sector had also been via minority share acquisition or majority share acquisition by changing the ownership status. In addition, the Turkish banking sector attracted foreign capital as a major buyer in initial public offerings (IPOs) of domestic banks as well.[7] Furthermore, the Turkish banking sector had been exposed to foreign entry also in the form of greenfield (de novo) banks (Table A1).

Given this favorable outlook of the Turkish banking sector with respect to foreign entry, the global crisis in 2008, which had major negative effects on all countries around the globe[8], was assessed to have a relatively limited effect on the banking sector, even though Turkey was severely hit by the crisis.[9]

Despite the rather underreported evidence about the effect of the global crisis on the Turkish banking sector[10], Ganioğlu and Us (2014) and Us (2015a) find that the determinants of capital adequacy, asset quality, liquidity, profitability and income-expense structure of the Turkish banks were affected by the crisis. Moreover,

5 Denizer (2000) investigates foreign entry in the Turkish banking sector during 1980-1997 period and finds that foreign entry improved the performance of Turkish banks by lowering the overhead expenses and increasing profits as well as competition. Similarly, Köse (2009) analyzes the effect of foreign presence in the Turkish banking sector during 2004-2007 period and reports that interest spreads, non-interest income and overhead costs of domestic banks have changed due to foreign bank presence, while no significant differences were observed in the profitability and loan loss provisions. Aysan and Ceyhan (2008) conduct another important work, which examines the determinants of foreign entry in the Turkish banking sector and observes that favorable prospects regarding the Turkish economy and expectations for higher customer base as well as diversity of products and services attracted foreign investment. Bumin (2007) also analyzes the determinants of foreign entry in the Turkish banking sector and finds that profit opportunity is the main factor driving the increased share of foreign banks during 2003-2006 period.

6 Ganioğlu and Us (2014) provide detailed information about the restructuring of the Turkish banks.

7 Turkey experienced 3 major IPOs in 2004, 2005 and 2007. In particular, Denizbank's IPO in 2004 was perceived to be a landmark event in Turkey's capital markets. Vakıfbank's IPO was recorded as one of the biggest listings in the emerging market banking sector in 2005 and also represented the second-largest-ever financial institution and government IPO in the emerging markets of Central and Eastern Europe, Middle East, Africa and Latin America. Finally, Halkbank's IPO was noted as the biggest IPO in Turkey since 2000 and the third biggest share sale in Europe in 2007.

8 The global crisis in 2008 is considered to be the worst financial crisis since the Great Depression of the 1930s.

9 Real GDP growth registered negative values for four consecutive quarters after the crisis and declined sharply by posting a year-on-year contraction of 15 percent during the first quarter of 2009 (Alp and Elekdağ, 2011).

10 The effects of the global crisis on the Turkish banking sector are analyzed by Yörükoğlu and Atasoy (2010), Erdem (2010), Aras (2010) and Uygur (2010), which, however, give an overall perspective without putting a special emphasis on ownership status.

Us (2015b, 2015c) show that private and foreign banks diverged notably from each other and also from state banks with respect to the effects of the crisis on these determinants. Given that private banks may contain some form of foreign shareholding, this implies that banks may respond asymmetrically to the global crisis also depending on the mode of foreign entry.[11]

In particular, the fact that the impact of foreign ownership on performance may change depending on whether the mode of foreign entry is a takeover or a greenfield investment deserves careful examination.[12] In fact, analyzing the Central and Eastern European banks, Havrylchyk and Jurzyk (2011) show that performance determinants vary across banks with different modes of foreign entry. This provides evidence that a mode of foreign entry breakdown, which categorizes banks according to whether they are takeover, greenfield or not is necessary for a better description of Turkish banks' performance dynamics. In addition, a further category may also be needed since foreign entry in the Turkish banking sector also took place in the form of share acquisition. In that case, the effect of foreign entry on performance may vary depending on whether minority or majority shares of domestic banks have been acquired by foreign banks. Lastly, a final category may belong to banks that contain no foreign share at all.

Against this background, this study aims to contribute to the existing literature[13] by analyzing the effect of foreign entry on the determinants of profitability in the Turkish banking sector. In this regard, De Haas and Van Lelyveld (2006) and Fungáčová and Poghosyan (2011) provide the empirical basis while Dietrich and Wanzenried (2011), Athanasoglou et al. (2008), García-Herrero et al. (2009) and Havrylchyk and Jurzyk (2011) provide further guidance. Accordingly, the paper utilizes a set of bank-specific variables to seize idiosyncratic factors as well as host-country and global factors to take into account the role of aggregate conditions, both

11 Akın and Bayyurt (2016) differentiate between alternative forms of entry in analyzing the performance of Turkish banks and find higher profitability for de novo foreign banks compared to takeover banks. The study also analyzes the effect of the global crisis and reports lower profitability and efficiency in the post-crisis period. Despite presenting a useful analysis with respect to performance measures across different modes of entry, the study fails to ignore that determinants of performance may change depending on the mode of foreign entry or between the pre-crisis and the post-crisis periods.

12 The effect of foreign ownership may change depending on whether the bank is a takeover or a greenfield foreign bank. De Haas and Naaborg (2005a, 2005b) find that most greenfield banks are more closely integrated with the parent bank while many local banks that have been taken over by foreign banks are relatively independent from the parent bank. De Haas and van Lelyveld (2006) also discuss that the form of foreign entry is important as greenfields and takeovers reflect different entry strategies of the parent bank. Greenfield banks are likely to be more aggressive in their pricing strategies in order to quickly gain market share (Martinez Peria and Mody, 2004). Moreover, greenfield banks are urged to control all aspects of the new affiliate right from the start. Other banks put more emphasis on the need to be a real local bank, and thus prefer to take over an existing bank. In that case, the strategic direction and balance sheet composition of takeovers may continue to reflect the influence of the former management. This will especially be the case when local management and staff are not, or only partly, replaced.

13 Previous studies on the Turkish banking sector are Alper et al. (2001a; 2001b), Van Rijckeghem (1999), Steinherr et al. (2004), Alper and Öniş (2004), Metin-Özcan and Kafalı (2007) and Akçay (2003).

domestically and globally, on profitability.[14] Meanwhile, profitability is measured by return on assets, and alternatively, by return on equity, where the former reflects the ability to generate profits from assets and the latter denotes that from equity (Golin, 2001). In addition, dummy variables are used for mode of entry.

In the spirit of Ganioğlu and Us (2014) and Us (2015a), the paper performs a separate analysis for the pre-crisis and the post-crisis periods and for the overall data span. This enables to have an understanding about whether profitability determinants have changed after the global crisis. Given the statistical significance of the dummy variables for mode of entry, the exercise is conducted separately for each mode of foreign entry. In this regard, this is believed to be the first foreign entry mode categorization for the Turkish banking sector, which differs from official ownership classification. In particular, the breakdown is based on whether the bank has been exposed to foreign entry, which, as discussed before, may be in the form of takeover or greenfield investment, and alternatively, majority or minority shareholding by foreigners.[15] Finally, a bank may not be owned by foreigners at all.

The organization of the paper is as follows: The next section analyzes the Turkish banks with an ownership and mode of foreign entry breakdown. The following section discusses the determinants of profitability. This is succeeded by the description of the data. The subsequent section introduces the econometric methodology and evaluates the empirical results. Finally, the last section concludes this paper.

2. Overview of the Foreign Entry and Ownership Dynamics in the Turkish Banking Sector

A quick sketch of the Turkish banks shows that the structure of the banking sector has been quite dynamic with regards to ownership.[16] Table 2.1 provides historical information about foreign entry in the Turkish banking sector, which is used

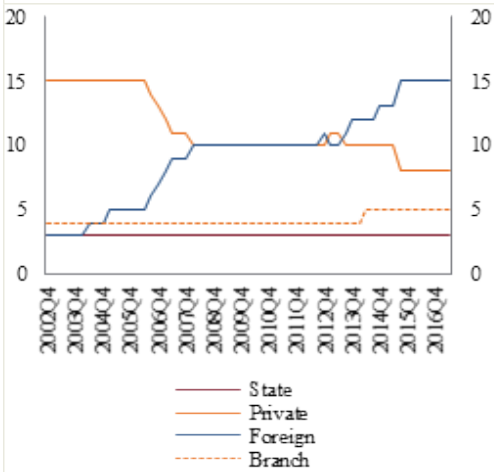
14 There is a strand of literature differentiating between home-country and host-country effects on foreign banks in the domestic banking sector. This so-called multinational banking literature discusses that foreign banks may be prone to effects stemming from their parent banks' country of origin. In this regard, De Haas and van Lelyveld (2006) find a negative relationship between home-country economic growth and host-country credit by foreign banks, while Williams (1998a, 1998b) report that foreign bank size is positively related to parent bank size. In an extended work, Williams (2003) shows that profitability of foreign banks in the host country is positively related to parent banks' profitability. In addition, Sturm and Williams (2008) find that foreign banks from financially sophisticated nations are more efficient. Yet, globalization of financial markets has changed the landscape of multinational banking, and global factors have become more important than home-country effects (Reinhardt and Riddiough, 2015).

15 Minority vs majority foreign ownership of banks has appealed significant attention. Accordingly, Berger et al. (2009) assert that minority shareholding by foreigners may serve as a quality signal to the capital market, while majority ownership by foreigners is recorded as the highest profit-efficient bank category after private domestic banks.

16 The ownership decision is based on the Banks Association of Turkey's categorization for ownership, which classifies a bank as a state bank if more than 50 percent of its shares are owned by the state, and alternatively, as private or foreign if more than 50 percent of its shares are in private or foreign hands, respectively. The analysis covers 31 deposit banks and excludes participation as well as development and investment banks. The analysis excludes deposit banks (Adabank A.Ş. and Birleşik Fon Bankası A.Ş.), which were taken over by Savings Deposit Insurance Fund. Some of the banks in the analysis are founded during the period of analysis, while others might have switched category from development and investment banks to deposit banks (Citibank A.Ş. and Deutsche Bank A.Ş.).

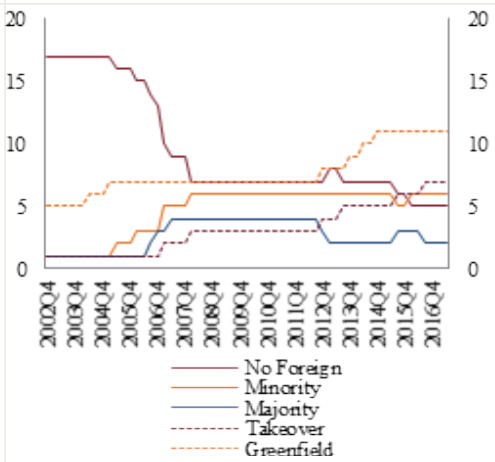
to classify banks according to their foreign share content. Accordingly, Charts 2.1 and 2.2 show that the number of foreign banks in the Turkish banking sector has risen dramatically starting from 2004, whereas that of private banks has fallen. The increasing foreign banks were initially in the form of greenfield investment. In the meantime, the number of banks with no foreign share has plunged as of 2005, while that of banks with foreign entry has risen significantly both in terms of minority and majority shares and takeover.

Chart 2.1. Number of Banks by Ownership



Source: The Banks Association of Turkey, Author's calculations.

Chart 2.2. Number of Banks by Mode of Foreign Entry



Source: The Banks Association of Turkey, Author's calculations.

Table 2.1. Foreign Entry in the Turkish Banking Sector

Akbank T.A.Ş.	20 percent share sale to Citibank Overseas Invesment Corporation in 2005
Alternatifbank A.Ş.	Takeover by Commercial Bank of Qatar in 2012
Bank of Tokyo-Mitsubishi UFJ Turkey A.Ş.	Greenfield establishment in 2012
Burgan Bank A.Ş.	70 percent share sale to Eurobank in 2007 and 99.26 percent share sale to Burgan Bank in 2012
Denizbank A.Ş.	74.9965 percent share sale to Dexia in 2006 and 99.85 percent share sale to Sberbank Rossi in 2012
Fibabanka A.Ş.	Takeover by Novabank in 2002, 95 percent share sale to Credit Europe in 2010, 97.63 percent share sale to Fiba Holding in 2012 and 19.90 percent share sale to IFC and EBRD in 2015
Finans Bank A.Ş.	46 percent share sale to National Bank of Greece in 2006 and 99.81 percent share sale to QNB Group in 2016
ICBC Turkey Bank A.Ş.	75.5 percent share sale to Industrial and Commercial Bank of China Limited in 2015
ING Bank A.Ş.	Takeover of Oyakbank by ING Group in 2007
Intesa Sanpaolo S.p.A.	Greenfield establishment in 2014
Odea Bank A.Ş.	Greenfield establishment in 2011
Rabobank A.Ş.	Greenfield establishment in 2013
Şekerbank T.A.Ş.	33.98 percent share sale to TuranAlem Securities JSC in 2006
Turkland Bank A.Ş.	50 percent share sale to Arap Bank Plc and 41 percent share sale to BankMed in 2007
Türk Ekonomi Bankası A.Ş.	42.125 percent share sale to BNP Paribas in 2005
Türkiye Garanti Bankası A.Ş.	25.5 percent share sale to General Electric Group in 2005, 24.89 and 14.89 percent share sale to Banco Bilbao Vizcaya Argentaria SA in 2011 and in 2015, respectively.
Yapı ve Kredi Bankası A.Ş.	40.9 percent share sale to UniCredit in 2002
Source: The Banks Association of Turkey.	

Having followed a somewhat steady pace after this intensive foreign capital exposure, starting from 2013, the Turkish banking sector has embraced another round of foreign capital spree, which has been in the form of greenfield investments and takeovers. In the meantime, the number of banks with minority foreign share has been stable, whereas the ones with majority and no foreign share have seen a decline. Meanwhile, the number of state banks has remained unchanged, while that of foreign branches has increased as of end-2013.

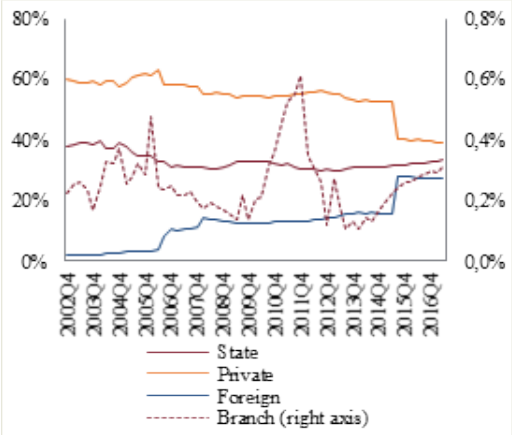
A further look at the ownership structure of the Turkish banking sector shows that the share of foreign banks in terms of asset size has grown significantly as displayed in Chart 2.3. The growth has been more marked starting from 2006 and gained another remarkable momentum as of 2015. Foreign banks' assets follow a reverse course to that of private banks. This implies that foreign entry in the Turkish banking sector has mostly been in the form of takeover of private banks or acquisition of majority shares in private banks by foreigners.

This can be confirmed by another breakdown that analyzes asset size by mode of foreign entry. In particular, Chart 2.4 shows that the relative asset size of banks with no foreign share dropped abruptly starting from 2006, while the asset size of other banks with foreign shares increased. Initially, the increase in relative asset size was mostly observed in banks with minority and majority foreign share. However, as of end-2012, the asset size of takeover banks also surged. By end-2015, the asset size of banks with minority foreign share decreased sharply in relative terms, while that of banks with majority foreign share and takeover banks increased. These observations are in line with the foreign entry dynamics as discussed previously.

On the greenfield banks front, their share in total assets is relatively low and slowly increasing from 2 percent in 2003 to 4.3 percent at end-2014. The share of greenfield investments in total assets decreases suddenly as of 2015 and reaches 3.6 percent by the end of 2016. This is another evidence to support that the increased foreign share in the Turkish banking sector was provided via acquisition of private banks by foreigners.

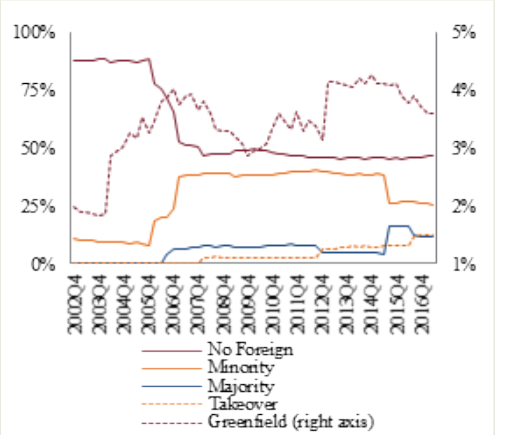
Meanwhile, Chart 2.3 shows that the share of foreign branches in total assets is small and steady over the analyzed period. In particular, the share ranges from 0.1 to 0.6 percent over the analyzed period. Even though their share is significantly low, foreign branches experience a sharp increase in their relative asset size as of 2009, which, however is reversed by end-2012. As of 2014, the share of foreign branches re-settles on an uptrend.

Chart 2.3. Banks' Shares in Total Assets by Ownership



Source: The Banks Association of Turkey, Author's calculations.

Chart 2.4. Banks' Shares in Total Assets by Mode of Foreign Entry



Source: The Banks Association of Turkey, Author's calculations.

A further analysis shows how this dynamic ownership structure has affected banks' profitability. In particular, Charts 2.5-2.6 and 2.7-2.8 show that both return on assets (ROA) and return on equity (ROE) differ with respect to ownership and mode of foreign entry, yet the variation is more marked in return on assets across ownership categories and also before the crisis. In particular, foreign banks are the most profitable banks before the crisis, however they are less profitable than other banks after the crisis. Meanwhile, both state and private banks maintain an average profitability after the crisis, whereas the profitability of state banks is above average and that of private banks is below average before the crisis. As for foreign branches, they are significantly more profitable than other banks in the post-crisis period, especially after 2014, whereas they are markedly less profitable in the pre-crisis period. In terms of mode of foreign entry, the variation in profitability is less visible yet more significant in terms of return on equity. In particular, the profitability of takeover and minority foreign share banks is extremely low before the crisis, which creates an illusion that other banks look virtually similar to each other.

Chart 2.5. ROA by Ownership

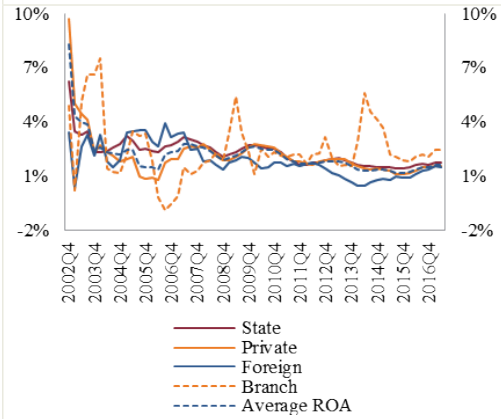


Chart 2.6. ROA by Mode of Foreign Entry

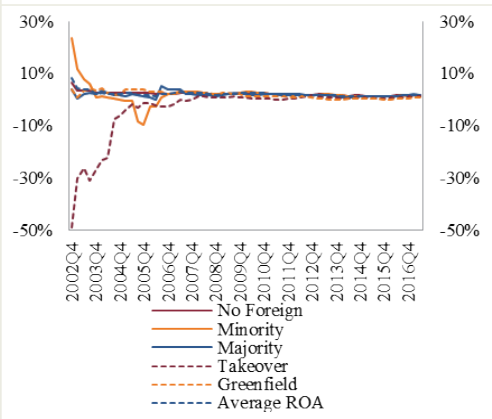
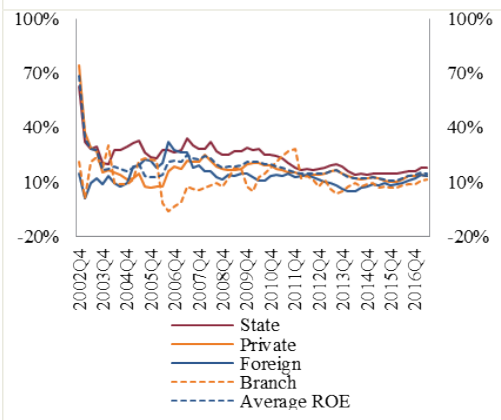
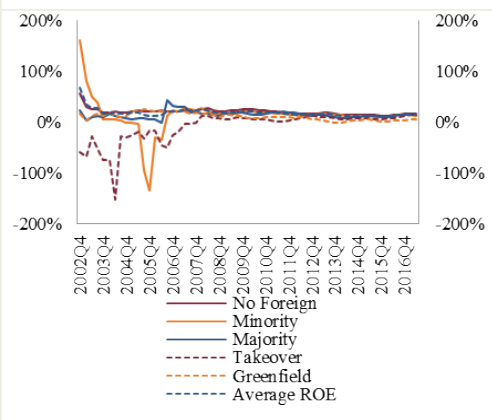


Chart 2.7. ROE by Ownership



Source: The Banks Association of Turkey, Author's calculations.

Chart 2.8. ROE by Mode of Foreign Entry



Source: The Banks Association of Turkey, Author's calculations.

3. Determinants of Profitability

The determinants of profitability are defined as variables pertaining to idiosyncratic (bank-specific) factors[17] and aggregate conditions in the domestic (host-country factors) and the global economy (global factors). The expected impacts can be described as follows:

3.1. Bank-Specific Factors

Capital adequacy is a significant determinant of profitability. Demirgüç-Kunt and Huizinga (1999) discuss that well-capitalization of banks is associated with greater profitability as banks with higher capital ratios tend to face a lower cost of funding

17 Bank-specific factors also include dummy variables for mode of foreign entry, the effects of which are discussed previously in the text. It is assumed that these may have positive or negative effects on profitability.

due to weaker prospects for bankruptcy costs. In fact, Berger (1995) finds a positive link between bank profitability and capitalization for US banks and concludes that well-capitalized banks face smaller expected bankruptcy costs, which reduce their cost of funding.

Credit risk is a significant determinant of profitability. In particular, Poudel (2012), Kolapo et al. (2012) and Chen and Pan (2012) show a significant negative effect of credit risk on profitability. Angbazo (1997) stresses that banks require higher interest earnings to compensate for increased risk of default. Cooper et al. (2003) argue that credit risk leads to volatility in loan portfolio, which has an adverse effect on profitability. Similarly, Duca and McLaughlin (1990) show that credit risk causes volatility in banks' profitability. Heffernan (1996) also discusses that credit risk has an unfavorable effect on profitability.

Currency mismatch is another significant determinant of profitability. More specifically, Kutan et al. (2010) discuss that currency mismatch between banks' assets and liabilities could increase financial fragility, create balance sheet problems and affect bank profitability, while Kutan et al. (2012) show that currency mismatch Chang and Velasco (2001) also argue that currency mismatch reduces banks' profits by increasing default risk for clients, and this may even lead to bank failures.

Liquidity is also important to the profitability of banks. Rhoades (1985) discusses that high liquidity causes lower profits. Yet, Bourke (1989) finds a positive relationship, while Molyneux and Thornton (1992) and Goddard et al. (2004) find mixed evidence of a negative relationship between liquidity and profitability. Meanwhile, Bordeleau and Graham (2010) report a nonlinear relationship, whereby profitability is improved up to some liquidity level beyond which profitability decreases.

Operating efficiency is also important to measure banks' profitability. Demirgüç-Kunt and Huizinga (1999), Molyneux and Thornton (1992) and Ben Naceur (2003) discuss about a positive association between operating expenses and profits. Yet, Guru et al. (2002) discuss that higher expenditures lead to higher profits only if they increase the volume of activity. Besides, Flamini et al. (2009) expect high operating expenses to erode profits unless banks manage to pass on their costs to their depositors and lenders.

Bank size is another determinant of profitability. Smirlock (1985) finds strong evidence that bank size is positively related to profitability. This is because larger banks may more easily diversify their products and loans, which leads to lower risk

and higher profitability. Yet, Lin and Zhang (2009), Stiroh and Rumble (2006) and Pasiouras and Kosmidou (2007) show that extremely large banks may suffer from lower profits due to agency costs, bureaucratic processes and other costs related to managing large firms.

3.2. Host-Country Factors

Real Gross Domestic Product (GDP) growth is influential on banks' profitability. In particular, the level of economic activity is strongly correlated with credit and deposit volumes, which implies higher profitability. In this regard, Demirgüç-Kunt and Huizinga (1999), Bikker and Hu (2002), Athanasoglou et al. (2008), Kosmidou (2008) and Goddard et al. (2004) report a positive link between economic growth and profitability.

Inflation is another important determinant, which can boost profitability. More specifically, Hanson and Rocha (1986) find a positive correlation between interest margins and inflation. Similarly, Demirgüç-Kunt and Huizinga (1999) observe that higher inflation is associated with higher interest margins and profitability.

Policy rate is also a significant factor of profitability. Borio et al. (2015) investigated the influence of monetary policy on bank profitability by analyzing the effect of policy rates on various profitability measures and documented a positive relationship between policy rates and profitability, which is even stronger for low interest rates. Genay and Podjasek (2014) also examined the impact of policy rates on bank profitability and found a positive effect of short-term interest rates on the net interest margin.

The exchange rate is another determinant of profitability. Demirgüç-Kunt and Detragiache (1998), Choi et al. (1992) and Chamberlain et al. (1997) find strong negative correlation between profitability and exchange rate exposure. Similarly, He et al. (2014) observe that the performance of US banks is related to the value of the dollar.

3.3. Global Factors

Global growth is crucial to banks' profitability. Ongena et al. (2013) show that global growth shocks drive cross-border funding, while Reinhardt and Riddiough (2015) report that slower growth results in higher funding by foreign affiliates to their global parent banks, which implies adverse effects on the profitability of the foreign affiliates.

Global policy rates are important to profitability as well. Bruno and Shin (2015) show that total cross-border funding should increase if global rates fall, increasing the profitability of foreign affiliates. Yet, Cetorelli and Goldberg (2012) report that global parent banks may use their affiliates to smooth interest rate shocks at home.

Global uncertainty is also effective on profitability. De Haas and Van Lelyveld (2010, 2014), Schnabl (2012), Adrian and Shin (2010), Huang and Ratnovski (2011), Forbes and Warnock (2012), Fratzscher (2012) and Bruno and Shin (2015) show that elevated global economic uncertainty is linked to changes in global bank leverage, which is likely to have adverse effects on profitability. On the other hand, low uncertainty may lead to low client flows and less trading for banks, which may pull down earnings. In fact, Altavilla et al. (2017) report a positive link between uncertainty and bank profits in the euro area, which is confirmed by findings of Cheng and Mevis (2019).

4. The Econometric Methodology, Data Description and Estimation Results

This section presents econometric methodology, data description and the estimation results for the benchmark model for all modes of foreign entry strata. This section also includes the alternative model estimation results for each mode of foreign entry.

4.1. The Econometric Methodology

In view of the above discussion, profitability can be modeled as follows:

$$Profit_{it} = \alpha + \beta_1 Bank_{it} + \beta_2 Host_t + \beta_3 Global_t + U_i + \varepsilon_{it}$$

Where $Profit_{it}$ is the profitability of bank i at time t; $Bank_{it}$ is the matrix of bank-specific variables for bank i at time t; $Host_t$ is the matrix of host-country factors at time t; $Global_t$ is the matrix of global factors at time t; α is the intercept term; β_1, β_2 and β_3 are the corresponding coefficient vectors. U_i is the unobserved bank-specific effect and ε_{it} is the idiosyncratic error term, both following i.i.d. processes with mean 0 and variances σ_u and σ_ε, respectively. The subscripts i and t range from 1 to N and 1 to T, correspondingly, where N is the number of banks and T is the number of periods in the dataset.

The above model is estimated using panel data estimation techniques. Hsiao (2003) argues that ordinary least squares estimators may be inconsistent and/or meaningless in case of heterogeneity. De Haas and van Lelyveld (2006) also discuss

that treating banks as if they are homogeneous entities is a too strong restriction. Conversely, the fixed effects[18] and random effects models take into account the heterogeneity across firms by allowing variable intercepts. Hence, the above model is estimated using fixed effects and random effects with the associated Hausman specification tests (Hausman, 1978). Accordingly, the test is used to assess the validity of the null hypothesis that the random effects model is preferred due to higher efficiency versus the alternative hypothesis that the fixed effects model is consistent, despite being less efficient. For chi-squared values close to zero, the null hypothesis is rejected. Otherwise, the less restrictive random effects model is accepted.

4.2. Data Description

The database covers 30 deposit banks[19] between 2002Q4-2017Q2. Tables A1-A2 present the description of the data and their summary statistics. The dependent variables are as follows: PROFITS/ASSETS is the ratio of net profits (loss) to total assets and PROFITS/EQUITY is the ratio of net profits (loss) to shareholders' equity, which shows return on assets and return on equity, respectively.

The bank-specific independent variables are as follows: EQUITY/RWASSETS is the ratio of shareholders' equity to risk-weighted assets that indicates capital adequacy[20]; NPL/LOANS is the ratio of non-performing loans[21] to total loans that represents credit risk; FXASSETS/FXLIABILITIES is the ratio of foreign exchange (FX) assets to FX liabilities that signifies currency mismatch[22]; LIQASSETS/ASSETS is the ratio of liquid assets to total assets that stands for liquidity; INCOME/EXPENSES is the ratio of total operating income to other operating expenses that corresponds to operating efficiency; ASSETS/GDP is the ratio of total assets to GDP that indicates bank size.

The dummy variables for mode of foreign entry are DNOFOREIGN, DMINORITY, DMAJORITY, DTAKEOVER and DGREENFIELD, which stand for banks with no foreign share, banks with minority foreign share, banks with majority foreign share, takeover banks and greenfield banks, respectively.[23, 24]

18 The fixed effects model eliminates the unobserved bank-specific effect in the above equation.
19 One of the deposit banks that was included in the analysis in Section 2 is dropped due to its outlier nature.
20 This corresponds to standard capital adequacy where risk weights are determined rather mechanistically as no Turkish banks used Internal Rating Based Approach during the analyzed period (BCBS, 2016).
21 In Turkey, loans are classified as standard, watch, substandard, doubtful and loss loans. NPLs are composed of the last three categories, which include all loans with overdue payments of 90 days or more (BRSA, 2006).
22 Currency mismatch is narrower if the ratio of FX assets to FX liabilities is higher. Hence, using this definition, currency mismatch is expected to increase profitability.
23 DNOFOREIGN is the reference dummy variable as the number of banks with no foreign capital is the lowest. Hence the coefficients of mode of foreign entry dummies should be interpreted relative to these banks.
24 Banks are categorized according to their foreign share content by taking into account the dynamic structure with respect to foreign entry observed in the Turkish banking sector. Accordingly, a bank may be defined as minority bank in the start of the analysis but switch to majority bank category if its majority shares are later acquired by foreign

As for host-country factors, GDP indicates the year-on-year growth rate of the real GDP in logs; INFLATION is the year-on-year change in the consumer price index (CPI) in logs; POLICYRATE is the policy rate of the Central Bank of the Republic of Turkey (CBRT)[25]; and EXCHANGE is the quarter-on-quarter change in the United States dollar vs Turkish lira (USD/TRY) in logs. Global factors are captured by GLOBALGDP, which denotes the year-on-year change in global GDP; the GLOBALRATE, which is the global policy rate; and VIX, the volatility index that represents the global uncertainty.[26,27]

4.3. Estimation Results

Tables A3-A10 display the estimation results. In the benchmark model, the empirical model is regressed using the overall sample and separately for the pre-crisis and the post-crisis periods, which cover 2002Q4-2008Q4 and 2009Q1-2017Q2, respectively.[28] As the dummy variables for mode of foreign entry return significant coefficients, this gives enough justification for this exercise to be repeated individually for each mode of foreign entry category in the alternative model. Both models are regressed separately using return on assets and return on equity, which are the profitability measures.[29]

4.3.1. Benchmark Model

Estimation results in Table A3 show that using net return on assets, the profitability of Turkish banks is affected positively by credit risk and currency mismatch, while it is affected negatively by liquidity and operating efficiency using the whole sample. Except for credit risk, the sign of the coefficients is as expected. However, this unpredictable boost from credit risk to profitability is also documented by Akter and Roy (2017).

partners. The categorization of the banks is based on Table 2.1.

25 Policy rate is the overnight lending rate between 2002Q1-2010Q1, the 1-week repo rate as of May 2010 and the average funding rate as of 2012Q1, which corresponds to the policy rate in effect.

26 The Chicago Board of Exchange Volatility Index (VIX) is a key measure of market expectations of near-term volatility conveyed by Standard and Poor's 500 stock index option prices. It is considered as a barometer of investor sentiment and market volatility. For further details, see http://www.cboe.com/products/vix-index-volatility/vix-options-and-futures/vix-index.

27 GLOBALGDP is the weighted sum of each country's GDP in global GDP, while GLOBALRATE is the sum of policy rate in each country weighted by the relevant country's share in global GDP.

28 The effect of the global crisis was initially captured by the inclusion of a dummy variable for the global crisis in the overall sample, which yielded a statistically significant coefficient. This was further supported by the Chow test, which returned a sufficiently high F-statistic, confirming the presence of a structural break. As there were no major legislative or structural changes in the non-financial business sector, the intuition implies that this must be due to the global crisis, which provides enough evidence for splitting up the sample.

29 In all models, bank-specific, host-country and global factors enter the regression with a lag, where the lag length that ranges from 1 to 4 is set according to some information criteria (both Akaike and Bayesian). The use of lagged values is to control for potential endogeneity and simultaneity problems and to take into account any delay in the reaction of profits to selected explanatory variables.

The coefficients of dummy variables for mode of foreign entry are significant for takeover and majority foreign share banks, and their effects are negative. As for host-country factors, GDP and inflation are significant with a positive effect in the overall analyzed period as predicted. Meanwhile, on the global factors front, the global policy rate and VIX have a significant positive effect in the same period, which is expected.

Estimations in Table A4 using net return on equity yield somewhat different results. Specifically, profitability is affected adversely by capital adequacy, liquidity and operating efficiency, while the effect of currency mismatch on profitability is positive. Except for capital adequacy, the coefficients of all bank-specific factors turn expected signs. On the other hand, the unpredicted negative sign of the coefficient of capital adequacy has also been documented in other earlier studies. In particular, Bikker and Vervliet (2018) reported that profitability is reversely linked to capital adequacy. This is attributed to the fact that lower capital adequacy implies higher risk exposure, which leads to wider margins. This is in line with the risk-return relationship, which is also reported in Borio et al. (2015).

The dummy variables for foreign entry are negatively significant for takeover banks. As for host-country factors, GDP and inflation have a significant upward effect as expected. However, exchange rate has a surprising positive effect. This can be justified if banks are in a long position with respect to FX holdings, which is as suggested by Ekinci (2016). For global factors, policy rate and VIX are significant with a positive sign.

Using net return on assets, estimations by sub-periods show that profitability is affected solely by currency mismatch and operating efficiency before the crisis with regards to bank-specific factors, where the former has an upward and the latter has a downward effect on profitability as predicted. After the crisis, however, profitability is affected by a wider range of bank-specific factors. Specifically, capital adequacy, credit risk, liquidity, operating efficiency and bank size are all significant, where the coefficients of capital adequacy and credit risk are positive, and the others have negative signs.

The significance of the dummy variables for mode of foreign entry also differs by sub-periods using net return on assets. In particular, banks with minority foreign share and takeover banks are significant with negative signs before the crisis, whereas after the crisis, the dummy variables for mode of foreign entry do not have significant coefficients. As for host-country factors, the estimations produce

insignificant coefficients in both sub-periods unlike in the case for the overall period. Meanwhile, global GDP growth has a favorable, whereas global policy rate has an unfavorable effect on profitability after the crisis.

Estimations by sub-periods using net return on equity also yield somewhat different results compared to the overall period estimations. More specifically, profitability is affected positively by currency mismatch and negatively by liquidity and operating efficiency in the pre-crisis period as expected. However, after the crisis, profitability is affected adversely by capital adequacy, liquidity, operating efficiency and bank size, while it is affected positively by currency mismatch. Except for the capital adequacy, the coefficients of significant bank-specific factors have the expected signs.

The significance of the dummy variables for foreign entry also differs by sub-periods using net return on equity. In particular, the results yield a negatively significant coefficient for greenfield and takeover banks before and after the crisis, respectively. The estimations for host-country factors produce insignificant coefficients in the pre-crisis period, whereas after the crisis, profitability is affected only by inflation with an unpredicted negative sign. This reverse relation is documented in Bikker and Vervliet (2018), yet this conflicting evidence with the commonly accepted procyclicality between profitability and inflation is unresolved. Meanwhile, global factors are insignificant before the crisis, while profitability is affected favorably by VIX after the crisis.

4.3.2. Alternative Model

Given the evidence that foreign entry has a significant effect on profitability, the model is regressed by each mode of foreign entry category. Also, on the basis of the benchmark model estimations which yield different results for the pre-crisis and the post-crisis periods, the estimations are repeated by sub-periods. Accordingly, using net return on assets, Tables A5-A7 and A8-10 present the estimation results for the whole sample and also for the pre-crisis and post-crisis periods, respectively, using net return on assets and net return on equity as the profitability measure, comparatively.

Against this background, using net return on assets, it can be observed that the significance of bank-specific factors differs depending on the mode of foreign entry and also by the analyzed period. More specifically, capital adequacy has a positive effect on the profitability of banks with no foreign share and a negative effect on the profitability of minority foreign share and takeover banks, while for others, its

effect is insignificant during the overall analyzed period. Capital adequacy poses an upward effect on banks with no foreign share and a downward effect on banks with minority foreign share in both sub-periods as well. Yet, its effect on takeover banks is insignificant both before and after the crisis. Meanwhile, in the pre-crisis period, banks with majority foreign share are affected favorably by capital adequacy, while capital adequacy is insignificant otherwise.

Using net return on equity, capital adequacy imposes a positive effect on banks with no foreign share and a negative effect on minority foreign share, takeover and greenfield banks; whereas for others, its effect is insignificant using the overall sample. Even though capital adequacy has an effect on banks with no foreign share in both sub-periods, the effect is negative before the crisis, while it switches to positive after the crisis. In the meantime, capital adequacy has an adverse effect on banks with minority foreign share in both sub-periods and banks with majority foreign share and greenfield banks in the post-crisis period, while capital adequacy is insignificant otherwise.

Credit risk has a negative coefficient for banks with no foreign share, while it is insignificant for other banks during the overall analyzed period when net return on assets is used as the measure of profitability. In the pre-crisis period, credit risk pushes down the profitability of banks with no foreign share and majority foreign share as well as greenfield banks, while it increases the profitability of takeover banks. On the other hand, in the post-crisis period, banks with minority foreign share and greenfield banks are affected favorably by credit risk, while banks with majority foreign share and takeover banks are affected unfavorably. Meanwhile, credit risk is insignificant for other banks in this period.

Using net return on equity as the profitability measure, credit risk has an adverse effect on the profitability of banks with no foreign share, while it is insignificant for other banks during the overall analyzed period. Credit risk poses an upward pressure on the profitability of banks with no foreign share before the crisis, while it places a downward pressure on banks with majority foreign share after the crisis. On the other hand, it is insignificant for other banks in both sub-periods.

Currency mismatch reduces the profitability of no foreign share, majority foreign share and takeover banks in the overall period by using net return on assets. Before the crisis, currency mismatch leads to lower profitability for banks with majority foreign share, while it pushes up that of banks with minority foreign share. In the post-crisis period, currency mismatch is more significant, yet its effect varies depend-

ing on the mode of foreign entry category. In particular, no foreign share, majority foreign share and greenfield banks are affected adversely by currency mismatch, while takeover banks are affected positively. Meanwhile, currency mismatch is insignificant for other banks in this period.

Using net return on equity as the profitability measure, currency mismatch can be observed to pose a downside effect on the profitability of banks with majority foreign share, while it has a favorable impact on takeover banks during the overall analyzed period. In the pre-crisis period, the effect of currency mismatch is positive on the profitability of banks with minority foreign share and negative on greenfield banks, while it is insignificant for other banks. Currency mismatch is more significant and diversely effective in the post-crisis period. In particular, the profitability of banks with minority foreign share and takeover banks is affected favorably by currency mismatch, while the profitability of banks with majority foreign share is impacted unfavorably. Meanwhile, currency mismatch is insignificant for other banks in this period.

Liquidity seems to place an upward effect on the profitability of banks with minority foreign share and greenfield banks, while it poses a downward effect on the profitability of takeover banks in the overall analyzed period by using net return on assets. In the pre-crisis period, liquidity reduces the profitability of banks with no foreign share and increases the profitability of greenfield banks. Liquidity is more effective in the post-crisis period. In particular, banks with no foreign share and minority foreign share as well as takeover and greenfield banks are affected unfavorably by liquidity, while liquidity is insignificant for other banks in this period.

Using net return on equity as the profitability measure, liquidity has an adverse effect on the profitability of no foreign share and takeover banks, while it has a favorable impact on banks with majority foreign share in the overall period. Before the crisis, liquidity is only significant for greenfield banks, posing a positive effect, whereas it is more effective in the post-crisis period by placing a downward pressure on the profitability of banks with no foreign share, takeover banks and greenfield banks.

Operating efficiency reduces the profitability of all bank categories in the overall analyzed period by using net return on assets. In the pre-crisis period, this downward effect can be observed on banks with no foreign share and minority foreign share as well as greenfield banks, while it is more effective in the post-crisis period by placing a downward pressure on all banks.

Using net return on equity, it can be observed that operating efficiency feeds into lower profitability for all bank categories in the overall analyzed period and also in the post-crisis period excluding majority foreign share banks, which are affected favorably by operating efficiency after the crisis. This evidence holds true in the pre-crisis period as well except for takeover banks, which are not affected by operating efficiency in this period.

Finally, using net return on assets, it can be concluded that bank size imposes a downward pressure on the profitability of banks with no foreign and majority foreign share as well as greenfield banks in the overall analyzed period. Before the crisis, this negative effect is only valid for minority foreign share and greenfield banks, and after the crisis, bank size reduces the profitability of banks with majority foreign share and takeover banks.

Using net return on equity as the measure of profitability, it can be observed that bank size decreases the profitability of banks with no foreign share, while it pushes up that of greenfield banks in the overall period. Before the crisis, the profitability of banks with minority foreign share is affected adversely by bank size, whereas after the crisis, bank size increases the profitability of these banks as well as that of takeover and greenfield banks.

Analyzing the effects of host-country factors reveals that GDP growth feeds into reduced profitability in takeover banks in the overall period, which is unexpected. Yet, this countercyclical behavior is also documented in Martinho et al. (2017) and Bikker and Vervliet (2018), among others. Banks with minority foreign share are affected favorably, while takeover banks are affected unfavorably by GDP growth in the pre-crisis period. Yet, GDP growth has no effect on profitability after the crisis.

On the inflation front, the effect is negative on banks with no foreign share and positive on banks with minority foreign share in the overall analyzed period. In the pre-crisis period, inflation only affects banks with minority foreign share with a positive sign, whereas in the post-crisis period, it is insignificant. This finding is in line with the benchmark model estimation results.

As for policy rate, it poses a downward pressure on the profitability of banks with minority foreign share and takeover banks in the overall analyzed period, while this negative effect is observed on takeover banks also in the pre-crisis period. In the meantime, policy rate has an adverse impact on the profitability of banks with no foreign share in the post-crisis period.

Meanwhile, the exchange rate is observed to have a negative effect on the profitability of banks with no foreign share, whereas it poses an upside effect on the profitability of banks with majority foreign share and takeover banks in the overall analyzed period. On the other hand, exchange rate has no effect on the profitability of banks in both sub-periods.

The analysis of the contribution of host-country factors to profitability using net return on equity reveals that GDP growth has an effect on only greenfield banks in the overall period, which is positive. On the other hand, GDP growth is more significant in the pre-crisis period by feeding into higher profitability for banks with minority and majority foreign share, while it poses a downside pressure on the profitability of takeover banks in the same period. In the post-crisis period, GDP growth is only significant for banks with minority foreign share with a negative sign.

As for inflation, its impact is negative on banks with no foreign share and positive on banks with minority foreign share in the overall analyzed period. Before the crisis, inflation has an effect on only banks with minority foreign share, which is positive, whereas after the crisis, inflation is insignificant for all bank categories.

Meanwhile, policy rate has an impact on banks with no foreign share and banks with minority foreign share, which is on the upside for the former and downside for the latter in the overall analyzed period. In the pre-crisis period, policy rate has no significance with respect to profitability, whereas in the post-crisis period, it has an adverse impact on the profitability of banks with no foreign share and banks with minority foreign share.

In the meantime, exchange rate has diverse effects depending on the mode of foreign entry. In particular, it reduces the profitability of banks with no foreign share and takeover banks, while it increases that of banks with majority foreign share in the overall analyzed period. Conversely, it has no effect on profitability both before and after the crisis.

As for global factors, global GDP growth has a negative significant effect on minority foreign share and greenfield banks, while it is insignificant for other banks in the overall period using net return on assets. Before the crisis, global GDP growth has only effect on minority foreign share banks, which is positive. Yet, after the crisis, global GDP growth has an effect on majority foreign share and greenfield banks, which is positive for the former and surprisingly negative for the latter. As pointed out by Kohlscheen et al. (2018), parent banks used their foreign affiliates for ad-

ditional liquidity demands during the global crisis, which explains this unexpected negative effect of global GDP on profitability.

Global policy rate induces the profitability of minority and majority foreign share and takeover banks in the overall analyzed period. In the pre-crisis period, global policy rate is insignificant, whereas after the crisis, global policy rate has a wider range of effects on banks with no foreign share and minority foreign share, and the effect is positive.

Finally, the volatility index VIX has an upward effect on the profitability of banks with no foreign share and takeover banks in the overall analyzed period. Before the crisis, VIX is insignificant for all bank categories, whereas after the crisis, it only has an effect on the profitability of banks with minority foreign share with an upward direction.

Conducting similar analysis using net return on equity, global GDP growth leads to lower profitability for minority foreign share and greenfield banks in the overall period, while it has a significantly positive effect on banks with minority foreign share in the pre-crisis period. After the crisis, however, global GDP growth is insignificant.

Global policy rate is highly effective on profitability in the overall period. Except for takeover banks, global policy rate is significant for all bank categories in this period with a positive sign. On the other hand, global policy rate has no effect on banks' profitability before the crisis. Yet, after the crisis, global policy rate has an effect on banks with no foreign share, banks with minority foreign share and greenfield banks, which is positive.

Lastly, the VIX has an upward effect on the profitability of banks with no foreign share and takeover banks in the overall analyzed period. Before the crisis, VIX has no effect on banks' profitability, whereas after the crisis, it only affects the profitability of banks with minority and majority foreign share, both with a positive sign.

4.3.3. Diagnostic Test Results

Using net return on assets as the profitability measure, the diagnostic tests suggest that the explanatory power of the benchmark model changes by sub-periods. In particular, the pre-crisis estimations yield a higher R-squared than the overall period estimations. Yet, the reverse is true for the post-crisis period estimations, which have slightly lower explanatory power than that of the overall period estimations.

The same observation cannot be concluded for the alternative model as the results are mixed depending on the mode of foreign entry category. In particular, estimations produce higher R-squared in the pre-crisis period than those produced in the overall analyzed period as in the benchmark model. Yet, this finding does not apply to estimations pertaining to banks with minority foreign share and greenfield banks, which produce somewhat lower R-squared in the pre-crisis period compared to the overall period. In the post-crisis period, estimations for all mode of foreign entry categories except for banks with majority foreign share yield lower R-squared compared to the pre-crisis period estimations. Yet, the explanatory power of the post-crisis estimations for banks with no foreign share and majority foreign share is still higher than those for the overall analyzed period.

Also, diagnostic tests show that the explanatory power of the regressions improves greatly in the alternative model. Obviously, the mode of foreign entry breakdown enhances the performance of the model. In particular, the alternative model is able to produce higher R-squared than the benchmark model for all bank categories in the overall analyzed period, except for estimations pertaining to banks with majority foreign share that produce slightly lower R-squared than that of the benchmark model.

A similar finding can be observed in the pre-crisis period excluding the estimations for banks with no foreign share, which yield a marginally lesser R-squared than that of the benchmark model. In the post-crisis period, on the other hand, the explanatory power of the alternative model is significantly higher than that of the benchmark model for all bank categories. The alternative model has the highest explanatory power for banks with minority foreign share in the overall analyzed period, for takeover banks in the pre-crisis period and for banks with majority foreign share in the post-crisis period.

Meanwhile, using net return on equity as the profitability measure, the diagnostic tests suggest that the explanatory power of the benchmark model also changes by the period of analysis. In particular, as in the previous case, the pre-crisis estimations have a higher explanatory power than that of the overall period estimations, while the post-crisis period estimations produce slightly lower R-squared than the overall period estimations.

The same finding cannot be observed for the alternative model as the results are mixed depending on the mode of foreign entry category. More specifically, estimations produce higher R-squared in the pre-crisis period than those produced in the

overall period as in the benchmark model. Yet, this finding does not apply to estimations for banks with no foreign share and minority foreign share, which produce marginally lower R-squared in the pre-crisis period compared to the overall period. However, after the crisis, the explanatory power of the estimations improves except for majority foreign share banks, which produce lower R-squared compared to the pre-crisis period estimations and for takeover banks, which produce lower R-squared compared to the overall and the pre-crisis periods estimations.

Also, diagnostic tests show that the explanatory power of the regressions enhances significantly in the alternative model, which indicates that the mode of foreign entry breakdown increases the performance of the model. In particular, the alternative model produces a higher R-squared than the benchmark model for all bank categories in the overall and in the post-crisis periods. A similar evidence can be found in the pre-crisis period except for no foreign share and greenfield banks, which produce a lower R-squared than that of the benchmark model. The alternative model has the highest explanatory power for minority foreign share banks in the overall and the post-crisis periods, while the highest R-squared is produced for banks with majority foreign share before the crisis.

5. Concluding Remarks

This paper examines the effect of foreign entry on the profitability of the Turkish banking sector. The analysis is performed using bank-level data for 2002Q4 and 2017Q2 period. In order to check whether the effect of foreign entry changes after the crisis, the analysis is conducted also by pre-crisis and post-crisis periods. Given the evidence that the effect of foreign entry is significant, the analysis is repeated for each mode of foreign entry category.

The measure of profitability is return on assets, which is the simplest measure of bank profitability. It reflects the capability of a bank to generate profits from its asset management functions. Therefore, it is frequently used as the key ratio for evaluation of bank profitability in the literature (Molyneux and Thornton, 1992; Golin, 2001). Return on equity, which is also a common measure of profitability, is used as an alternative metric to assess profitability for robustness check (ECB, 2010).

To evaluate the effects of foreign entry on Turkish banks' profitability, banks are classified according to their foreign share content. Hence, each bank is assigned a dummy variable for mode of foreign entry depending on whether the foreign entry content is zero (no foreign entry), less than 50 percent (minority foreign share),

more than 50 percent (majority foreign share), takeover (previously domestic bank taken over by foreigners) and greenfield banks (de novo foreign banks that are built up from the ground by a foreign parent bank). Accordingly, the paper seeks to estimate profitability dynamics by assigning some fundamental variables as the main determinants. These determinants include some idiosyncratic factors that are represented by selected financial ratios specific to each bank and aggregate factors that pertain to the domestic economy. The paper also controls for aggregate global effects by including a set of factors as the explanatory variables.

In the benchmark specification, the effect of foreign entry is confirmed by obtaining significant coefficients for mode of foreign entry dummy variables. Also, in the spirit of Ganioğlu and Us (2014) and Us (2015a), estimations are repeated by sub-samples that cover the pre-crisis and the post-crisis periods. This helps to assess whether the determinants have changed after the global crisis. In a further attempt, estimations are repeated in an alternative setting where profitability determinants are analyzed individually by each mode of entry. Again, these estimations are also conducted by sub-periods.

The results indicate that the profitability of Turkish banks is affected by a variety of aggregate and bank-specific factors. The significance of these determinants changes by mode of foreign entry and also depending on whether the estimations cover the overall sample, the pre-crisis period or the post-crisis period. This shows that banks have a profitability dynamics, which is rather unique depending on their foreign share content. In addition, profitability dynamics have changed greatly after the global crisis.

In particular, the estimation results for the benchmark model using the overall sample period suggest that most of the selected determinants are significant with expected coefficients. Except for the insignificant bank size, bank-specific factors reasonably explain banks' profitability, while domestic aggregate factors excluding the policy rate are relevant to the profitability dynamics as well. Global factors have also a plausible degree of importance to profitability given the statistical significance of global policy rate and volatility index. Meanwhile, the dummy variables for mode of foreign entry hint at the necessity of analyzing profitability individually by banks' foreign share content. These findings are valid for both measures of profitability.

The estimation results for the benchmark model by sub-periods give further clues about the profitability dynamics. More specifically, the findings show that a wider range of bank-specific determinants are effective on profitability after the crisis,

while global factors are also more relevant to profitability dynamics in this period. On the other hand, host-country factors take lesser account of banks' profitability in both sub-periods. In the meantime, mode of foreign entry matters in both sub-periods as a profitability determinant.

The estimation results for the alternative model are in line with the benchmark model results, which suggest that bank-specific factors and global factors are more important in the post-crisis period, whereas host-country factors are relatively less important in profitability dynamics. Meanwhile, the significance of the selected set of explanatory variables changes depending on the mode of foreign entry, which shows that bank-specific factors should need further scrutiny for understanding profitability.

Hence, for the refinement of these results, additional variables may be included, which are peculiar to mode of foreign entry. In particular, other variables may be added to capture the relation (especially with regards to funding) between parent banks and subsidiary banks. This may, in turn, affect the profitability structure. Also, for future studies, given the higher significance of global factors in the post-crisis period, the set of determinants may be expanded to seize distinctive developments in parent banks' countries. Furthermore, as the explanatory power of the models changes by mode of entry, this may prompt the addition of other variables (such as measures on administrative structure) to capture bank characteristics. Finally, a thorough understanding of the underlying structural forces driving the differences in profitability dynamics in domestic banks may be needed, which, however, is beyond the scope of this paper.

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Appendix

Table A1. Description of Variables and Their Expected Impact		
VARIABLES	**DESCRIPTION**	**EXPECTED IMPACT**
Dependent Variables		
PROFITS/ ASSETS	Net profits (loss) to total assets	
PROFITS/ EQUITY	Net profits (loss) to shareholders' equity	
Independent Variables		
EQUITY/ RWASSETS	Shareholders' equity to risk-weighted assets	+
NPL LOANS	Non-performing loans to total loans	-
FXASSETS/ FXLIABILITIES	FX assets to FX liabilities	+
LIQASSETS/ ASSETS	Liquid assets to total assets	+/-
INCOME/ EXPENSES	Total operating income to other operating expenses	+/-
ASSETS/ GDP	Total assets to the GDP	+/-
DNOFOREIGN	Dummy variable for banks with no foreign share	+/-
DMINORITY	Dummy variable for banks with minority foreign share	+/-
DMAJORITY	Dummy variable for banks with majority foreign share	+/-
DTAKEOVER	Dummy variable for takeover banks	+/-
DGREENFIELD	Dummy variable for greenfield banks	+/-
GDP	Year-on-year change in the real GDP in logs	+
INFLATION	Year-on-year change in CPI in logs	+
POLICYRATE	CBRT policy rate	+
EXCHANGE	Quarter-on-quarter change in USD/TRY exchange rate in logs	-
GLOBALGDP	Year-on-year change in in global GDP	-
GLOBALRATE	Global policy rate	+/-
VIX	CBOE volatility index	+/-
Source: http://www.tbb.org.tr, http://evds.tcmb.gov.tr, http://www.hazine.gov.tr.		

Table A2. Summary Statistics				
	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
PROFITS/ ASSETS	0.0154985	0.030508	-0.4903885	0.234037
PROFITS/ EQUITY	0.1208755	0.1646081	-1.632722	1.408285
EQUITY/ RWASSETS	0.2377157	0.1864675	0.0362328	1.908433
NPL/ LOANS	0.060326	0.1185065	0	1.191189
FXASSETS/ FXLIABILITIES	0.8031638	0.2090265	0.0533285	1.56733
LIQASSETS/ ASSETS	0.3642227	0.1876085	0.0290125	0.993796
INCOME/ EXPENSES	0.2538896	0.1158659	0.040345	1.377748
ASSETS/ GDP	0.1014027	0.1398875	0.0001255	0.592259
GDP	0.0531452	0.0475781	-0.0925138	0.172772
INFLATION	0.0961409	0.048287	0.0434429	0.316096
POLICYRATE	0.132687	0.0867267	0.0511	0.448956
EXCHANGE	0.0704452	0.1351978	-0.1938634	0.378495
GLOBALGDP	0.031046	0.0168238	-0.0303787	0.050648
GLOBALRATE	0.0201061	0.0133711	0.0078012	0.045621
VIX	18.53495	7.41771	10.72	44.29

Table A3. Benchmark Model Estimation Results for Return on Assets

	OVERALL		PRE-CRISIS		POST-CRISIS	
PROFITS/ ASSETS	Fixed Effecs	Random Effecs	Fixed Effecs	Random Effecs	Fixed Effecs	Random Effecs
Bank-Specific Factors						
EQUITY/ RWASSETS	**0.0026 (0.0042)**	0.0097*** (0.0037)	0.0014 (0.0098)	**0.0068 (0.0072)**	**0.0041* (0.0062)**	0.0100** (0.0052)
NPL/ LOANS	**0.0097** (0.0049)**	0.0067 (0.0046)	-0.0200* (0.0109)	**0.0016 (0.0093)**	**0.0244*** (0.0067)**	0.0207*** (0.0061)
FXASSETS/ FXLIABILITIES	**0.0120*** (0.0022)**	0.0101*** (0.0020)	-0.0197** (0.0098)	**0.0157*** (0.0061)**	**-0.0022 (0.0021)**	0.0093*** (0.0020)
LIQASSETS/ ASSETS	**-0.0075** (0.0032)**	-0.0038 (0.0029)	-0.0117 (0.0138)	**-0.0079 (0.0079)**	**-0.0093*** (0.0034)**	-0.0083*** (0.0032)
INCOME/ EXPENSES	**-0.0154*** (0.0043)**	-0.0258*** (0.0039)	-0.1517*** (0.0144)	**-0.0474*** (0.0115)**	**-0.0561*** (0.0041)**	-0.0127*** (0.0039)
ASSETS/ GDP	**0.0102 (0.0102)**	0.0076* (0.047)	0.0648 (0.0591)	**-0.0137 (0.0148)**	**-0.0300*** (0.0123)**	0.0108** (0.0052)
DMINORITY	**-0.0011 (0.0021)**	-0.0019 (0.0014)	-0.0089* (0.0052)	**-0.0063* (0.0035)**	**0.0016 (0.0028)**	-0.0004 (0.0017)
DMAJORITY	**-0.0037* (0.0021)**	-0.0006 (0.0017)	-0.0114* (0.0067)	**-0.0025 (0.0042)**	**0.0021 (0.0022)**	0.0004 (0.0018)
DTAKEOVER	**-0.0061*** (0.0017)**	-0.0049*** (0.0014)	-0.0068 (0.0076)	**-0.0103* (0.0055)**	**-0.0002 (0.0017)**	-0.0045*** (0.0015)
DGREENFIELD	**-**	0.0032* (0.0019)	-	**0.0015 (0.0043)**	**-**	0.0044** (0.0022)
Host-Country Factors						
GDP	**0.0062*** (0.0105)**	0.0083 (0.0107)	-0.0416 (0.0511)	**0.0028 (0.0509)**	**-0.0049 (0.0125)**	0.0027 (0.0129)
INFLATION	**0.0688* (0.0234)**	0.0740*** (0.0240)	-0.0350 (0.1508)	**-0.0193 (0.1489)**	**0.0080 (0.0282)**	-0.0050 (0.0291)
POLICYRATE	**-0.0289 (0.0175)**	-0.0341** (0.0178)	0.0464 (0.1481)	**0.0468 (0.1447)**	**-0.0267 (0.0312)**	-0.0042 (0.0321)
EXCHANGE	**0.0052 (0.0033)**	0.0058* (0.0034)	-0.0046 (0.0421)	**0.0415 (0.0404)**	**-0.0041 (0.0043)**	0.0048 (0.0044)
Global Factors						
GLOBALGDP	**-0.0388 (0.0393)**	-0.0364 (0.0403)	0.4453 (1.1025)	**1.0766 (1.0542)**	**-0.0713* (0.0402)**	-0.0124 (0.0415)
GLOBALRATE	**0.3283*** (0.0673)**	0.3376*** (0.0682)	0.3039 (0.5548)	**0.5174 (0.5432)**	**0.7454*** (0.1316)**	0.3682*** (0.1341)
VIX	**0.0002*** (0.0001)**	0.0002*** (0.0001)	0.0005 (0.0012)	**0.0012 (0.0012)**	**0.0000 (0.0000)**	0.0001** (0.0000)
CONSTANT	**0.0005 (0.0034)**	0.0004* (0.0030)	0.0364 (0.0554)	**-0.0704 (0.0548)**	**0.0310*** (0.0037)**	0.0020 (0.0033)
Number of Observations	**1097**	1097	272	**219**	**887**	878
R-squared	**0.4341**	0.6723	0.4600	**0.7672**	**0.3257**	0.5550
Wald chi-squared	392.63 (0.0000)		**110.30 (0.0000)**		261.23 (0.0000)	
F-statistics	**17.90 (0.0000)**		11.79 (0.0000)		**25.45 (0.0000)**	
Hausman Test	75.90 (0.0000)		12.98 (0.6041)		105.85 (0.0000)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. The dummy variable for greenfield banks is omitted due to multicollinearity in fixed effects estimations. Hausman test results favor fixed effects in overall and post-crisis period and random effects in the pre-crisis period. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A4. Benchmark Model Estimation Results for Return on Equity

	OVERALL		PRE-CRISIS		POST-CRISIS	
PROFITS/ EQUITY	**Fixed Effecs**	Random Effects	Fixed Effecs	Random Effects	Fixed Effecs	Random Effects
Bank-Specific Factors						
EQUITY/ RWASSETS	**-0.0893*** (0.0279)**	-0.0781*** (0.0266)	0.0027 (0.0621)	**-0.0693 (0.0558)**	**-0.1547*** (0.0390)**	-0.1093*** (0.0355)
NPL/ LOANS	**-0.0052 (0.0325)**	-0.0052 (0.0317)	-0.0957 (0.0798)	**0.0180 (0.0702)**	**-0.0514 (0.0425)**	-0.0680* (0.0404)
FXASSETS/ FXLIABILITIES	**0.0744*** (0.0149)**	0.0747*** (0.0143)	-0.0527 (0.0561)	**0.1027** (0.0496)**	**0.0571*** (0.0135)**	0.0652*** (0.0130
LIQASSETS/ ASSETS	**-0.1164*** (0.0217)**	-0.0996*** (0.0207)	-0.0291 (0.0929)	**-0.1096* (0.0655)**	**-0.1182*** (0.0212)**	-0.0997*** (0.0208)
INCOME/ EXPENSES	**-0.2144*** (0.0287)**	-0.2419*** (0.0276	-0.4123*** (0.0905)	**-0.2933*** (0.0887)**	**-0.1477*** (0.0262)**	-0.1803*** (0.0254)
ASSETS/ GDP	**-0.0865 (0.0682)**	0.0388 (0.0436)	1.6083*** (0.3670	**0.1191 (0.1328)**	**-0.1983** (0.0779)**	0.0411 (0.0419)
DMINORITY	**-0.0028 (0.0142)**	-0.0105 (0.0120	-0.0478 (0.0352)	**-0.0344 (0.0285)**	**0.0222 (0.0175)**	0.0014 (0.0132)
DMAJORITY	**-0.0158 (0.0141)**	-0.0150 (0.0127)	-0.0375 (0.0422)	**-0.0387 (0.0343)**	**0.0056 (0.0140)**	0.0004 (0.0124)
DTAKEOVER	**-0.0307*** (0.0110)**	-0.0319*** (0.0105)	-0.0376 (0.0491)	**-0.0058 (0.0382)**	**-0.0260** (0.0108)**	-0.0293*** (0.0100)
DGREENFIELD	**-**	-0.0055 (0.0184)	-	**-0.0719* (0.0436)**	**-**	0.0100 (0.0182)
Host-Country Factors						
GDP	**0.2128*** (0.0702)**	0.2215*** (0.0706)	-0.2559 (0.2866)	**0.2475 (0.3641)**	**0.0610 (0.0789)**	0.0757 (0.0809)
INFLATION	**0.4701*** (0.1564)**	0.4774*** (0.1574)	-0.5691 (0.8689)	**0.3943 (1.0655)**	**-0.3165* (0.1787)**	-0.2383 (0.1820)
POLICYRATE	**-0.1254 (0.1170)**	-0.1276 (0.1170)	1.0806* (0.6378)	**0.3441 (1.0364)**	**0.2450 (0.1978)**	0.1379 (0.2009)
EXCHANGE	**0.0373* (0.0223)**	0.0325 (0.0223)	0.0367 (0.1983)	**0.1454 (0.2905)**	**-0.0234 (0.0270)**	-0.0210 (0.0277)
Global Factors						
GLOBALGDP	**-0.4025 (0.2626)**	-0.4243 (0.2640)	2.1189 (4.1330)	**7.4326 (7.5847)**	**0.0660 (0.2544)**	0.0028 (0.2596)
GLOBALRATE	**2.4743*** (0.4492)**	2.6062*** (0.4488)	1.4317 (2.6692)	**4.6186 (3.8952)**	**0.5685 (0.8330)**	1.1526 (0.8408)
VIX	**0.0011*** (0.0003)**	0.0011*** (0.0003)	0.0017 (0.0042)	**0.0014 (0.0085)**	**0.0014*** (0.0003)**	0.0015*** (0.0003)
CONSTANT	**0.0995*** (0.0229)**	0.0800*** (0.0225)	-0.0950 (0.1563)	**-0.4485 (0.3925)**	**0.1656*** (0.0235)**	0.1180*** (0.0225)
Number of Observations	**1096**	1096	272	**218**	**887**	878
R-squared	**0.3431**	0.5786	0.3579	**0.7007**	**0.3369**	0.3894
Wald chi-squared	484.32 (0.0000)		**80.09 (0.0000)**		420.49 (0.0000)	
F-statistics	**28.07 (0.0000)**		4.11 (0.0000)		**26.49 (0.0000)**	
Hausman Test	43.67 (0.0000)		9.82 (0.8308)		121.84 (0.0000)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. The dummy variable for greenfield banks is omitted due to multicollinearity in fixed effects estimations. Hausman test results favor fixed effects in overall and post-crisis period and random effects in the pre-crisis period. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A5. Alternative Model Estimation Results by Mode of Entry for the Overall Period for Return on Assets

	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ ASSETS	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	0.0350*** (0.0060)	**0.0299*** (0.0053)**	-0.0711*** (0.0289)	**-0.0520** (0.0237)**	**0.0206 (0.0173)**	0.0000 (0.0134)	**-0.1306*** (0.0269**	-0.1410*** (0.0271)	0.0018 (0.0070	**0.0127 (0.0051)**
NPL/LOANS	-0.0741*** (0.0123)	**-0.0632*** 0.0111**	0.0913* (0.0520)	**-0.0111 (0.0360)**	**0.0371 (0.0385)**	-0.0797*** (0.0303)	**0.0408 (0.0681)**	0.0263 (0.0577)	-0.0048 (0.0069)	**-0.0088 (0.0065)**
FXASSETS/ FXLIABILITIES	-0.0088*** (0.0034)	**-0.0076** 0.0033**	0.0040 (0.0078)	**0.0025 (0.0061)**	**-0.0310*** (0.0093)**	-0.0248*** (0.0065)	**-0.0202*** (0.0049)**	-0.0097** (0.0047)	0.0033 (0.0047)	**0.0045 (0.0039)**
LIQASSETS/ ASSETS	-0.0041 (0.0045)	**-0.0064 0.0040**	-0.0019 (0.0119)	**0.0160* (0.0095)**	**0.0126 (0.0103)**	0.0104 (0.0102)	**-0.0591*** (0.0147)**	-0.0311** (0.0135)	0.0059 (0.0079)	**0.0122* (0.0066)**
INCOME/ EXPENSES	-0.0810 (0.0076)	**-0.0860*** 0.0070**	-0.0715*** (0.0189)	**-0.0532*** (0.0138)**	**-0.0603*** (0.0123)**	0.0497*** (0.0124)	**-0.0951*** (0.0091)**	-0.0738*** (0.0080)	-0.0518*** (0.0096)	**-0.0549*** (0.0079)**
ASSETS/ GDP	-0.0198 (0.0077)	**-0.0152*** 0.0054**	0.0617*** (0.0247)	**0.0031 (0.0093)**	**-0.0985* (0.0550)**	0.0159 (0.0116)	**0.0376 (0.1025**	-0.0361* (0.0208)	-0.1956 (0.1303)	**-0.1156** (0.0584)**
Host-Country Factors										
GDP	-0.0037 (0.0084)	**-0.0016 0.0085**	0.0510** (0.0247)	**0.0356 (0.0247)**	**0.0120 (0.0271)**	0.0535* (0.0292)	**-0.1112*** (0.0288)**	-0.1397*** (0.0307)	0.0085 (0.0314)	**0.0216 (0.0323)**
INFLATION	-0.0355 (0.0218)	**-0.0375* 0.0221**	0.2602*** (0.0591)	**0.2444*** (0.0594)**	**0.0343 (0.0667)**	0.0346 (0.0739)	**-0.0615 (0.0706)**	-0.0727 (0.0748)	-0.0241 (0.0808)	**-0.0035 (0.0834)**
POLICYRATE	0.0151 (0.0125)	**0.0170 0.0124**	-0.1690*** (0.0463)	**-0.1588*** (0.0461)**	**-0.0735 (0.0599)**	0.0665 (0.0617)	**-0.2333*** (0.0716)**	-0.3002*** (0.0704)	0.0793 (0.0523)	**0.0734 (0.0534)**
EXCHANGE	-0.0124*** (0.0027)	**-0.0122*** 0.0027**	0.0018 (0.0077)	**0.0050 (0.0077)**	**0.0144* (0.0085)**	0.0046 (0.0097)	**0.0202** (0.0086)**	0.0306*** (0.0089)	-0.0028 (0.0086)	**-0.0069 (0.0088)**
Global Factors										
GLOBALGDP	0.0043 (0.0329)	**0.0044 0.0332**	-0.2978*** (0.0915)	**-0.2586*** (0.0912)**	**0.1035 (0.1013)**	-0.1480 (0.1137)	**0.1141 (0.1034)**	0.1712 (0.1108)	-0.3301*** (0.1163)	**-0.3710*** (0.1203)**
GLOBALRATE	0.0347 (0.0486)	**0.0547 0.0481**	0.8902*** (0.1840)	**0.6841*** (0.1711)**	**0.4823** (0.2356)**	-0.1347 (0.2194)	**0.9434*** (0.2422)**	1.1058*** (0.2439)	0.2142 (0.1900)	**0.2613 (0.1940)**

Table A5. Alternative Model Estimation Results by Mode of Entry for the Overall Period for Return on Assets (continued)

VIX	0.0002*** (0.0000)	**0.0002*** 0.0000**	0.0001 (0.0001)	**0.0001 (0.0001)**	**-0.0001 (0.0001)**	-0.0001 (0.0001)	**0.0003** (0.0001)**	0.0003* (0.0001)	0.0000 (0.0001)	**0.0001 (0.0001)**
CONSTANT	0.0436*** (0.0045)	**0.0437*** 0.0040**	0.0107 (0.0110)	**0.0159*** (0.0063)**	**0.0474*** (0.0110)**	0.0177*** (0.0070)	**0.0927*** (0.0091)**	0.0808*** (0.0079)	0.0290*** (0.0091)	**0.0178** (0.0082)**
Number of Observations	340	**340**	238	**238**	**137**	129	**172**	172	259	**259**
R-squared	0.5826	**0.6722**	0.9119	**0.9752**	**0.3611**	0.9148	**0.8134**	0.8480	0.6584	**0.8424**
Wald chi-squared	**386.25 (0.0000)**		**142.20 (0.0000)**		31.34 (0.0030)		667.94 (0.0000)		**282.77 (0.0000)**	
F-statistics	27.47 (0.0000)		5.08 (0.0000)		**5.17 (0.0000)**		**50.62 (0.0000)**		9.34 (0.0000)	
Hausman Test	8.02 (0.8423)		10.93 (0.6170)		40.69 (0.0001)		54.85 (0.0000)		22.27 (0.0513)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. The dummy variable for greenfield banks is omitted due to multicollinearity in fixed effects estimations. Hausman test results favor fixed effects for majority and takeover banks and random effects for no foreign, minority and greenfield banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A6. Alternative Model Estimation Results by Mode of Entry for the Pre-Crisis Period for Return on Assets

	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ ASSETS	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	0.0313*** (0.0107)	**0.0193*** (0.0074**	-0.2618 (0.1811)	**-0.2844** (0.1221)**	0.0296 (0.0421)	**0.0509* (0.0280)**	0.0254 (0.1042)	**0.0311 (0.1646)**	**-0.0043 (0.0079)**	0.0016 0.0085
NPL/LOANS	-0.0796*** (0.0201)	**-0.0585*** (0.0156)**	-0.4911 (0.5380)	**-0.1656 (0.1793)**	-0.3182 (0.1930)	**-0.3246* (0.1974)**	-0.4434 (0.8259)	**1.6633* (0.9911)**	**-0.0540*** (0.0106)**	-0.0317*** 0.0116
FXASSETS/ FXLIABILITIES	0.0009 (0.0092)	**0.0001 (0.0065)**	0.2801** (0.1342)	**0.1173** (0.0597)**	-0.0595 (0.0498)	**-0.0619* (0.0349)**	-0.1446*** (0.0387	**-0.0569 (0.0414)**	**0.0059 (0.0068)**	0.0154*** 0.0062
LIQASSETS/ ASSETS	-0.0067 (0.0095)	**-0.0167*** (0.0066)**	-0.3482* (0.1725)	**0.0650 (0.0564)**	0.0249 (0.0505)	**0.0653 (0.0495)**	0.2883*** (0.0731)	**0.0931 (0.0850)**	**0.0810*** (0.0162)**	0.0380*** 0.0134
INCOME/ EXPENSES	-0.0477*** (0.0191)	**-0.0773*** (0.0126)**	0.1602 (0.1793)	**-0.1956** (0.0894)**	-0.0155 (0.0330)	**-0.0233 (0.0229)**	0.0348 (0.0438)	**-0.0175 (0.0653)**	**-0.0985*** (0.0300)**	-0.1159*** 0.0364
ASSETS/ GDP	-0.0407 (0.0326)	**-0.0041 (0.0108)**	0.1164 (0.2403)	**-0.1981** (0.1030)**	-1.0746* (0.6159)	**-0.1248 (0.1543)**	-1.8049 (1.2028)	**0.2580 (0.4103)**	**-0.5889** (0.2862)**	0.3811*** (0.1464)
Host-Country Factors										
GDP	-0.0166 (0.0249)	**-0.0096 (0.0260)**	0.4558*** (0.1631)	**0.3582** (0.1638)**	0.1177 (0.1197)	**0.1259 (0.1205)**	-0.2168* (0.1075)	**-0.2713* (0.1592)**	**0.0381 (0.0582)**	0.0228 (0.0711)
INFLATION	0.0301 (0.0725)	**0.0033 (0.0745)**	0.6696 (0.5487)	**1.2096** (0.5333)**	0.7522* (0.3770)	**0.5239 (0.3605)**	-0.5439 (0.4145)	**-0.8364 (0.6323)**	**-0.2067 (0.1851)**	-0.1755 (0.2259)
POLICYRATE	-0.0321 (0.0606)	**-0.0140 (0.0595)**	0.5154 (0.4696)	**-0.3124 (0.4314)**	-0.0236 (0.3861)	**0.2654 (0.3221)**	-1.3854*** (0.3836)	**-1.0615* (0.5814)**	**-0.0256 (0.1250)**	0.0696 (0.1505)
EXCHANGE	0.0018 (0.0190)	**-0.0024 (0.0194)**	-0.0505 (0.1537)	**0.1200 (0.1380)**	0.0192 (0.0577)	**-0.0087 (0.0578)**	0.1050 (0.0665)	**0.1056 (0.0904)**	**-0.0209 (0.0392)**	-0.0347 (0.0487)
Global Factors										
GLOBALGDP	0.7521* (0.4014)	**0.5294 (0.3900)**	7.5393 (6.3548)	**17.2128*** (6.2309)**	2.5878 (1.7931)	**1.2085 (1.3802)**	1.4128 (1.3337)	**1.3770 (1.6944)**	**-0.5150 (0.8427)**	-0.5944 (0.9633)
GLOBALRATE	-0.3289 (0.2590)	**-0.2323 (0.2655)**	3.1627 (3.1699)	**-0.9882 (2.6652)**	-2.4103* (1.2571)	**-1.2785 (0.9738)**	1.1679 (1.2740)	**0.6198 (1.7972)**	**0.4525 (0.5412)**	0.3029 (0.6559)

Table A6. Alternative Model Estimation Results by Mode of Entry for the Pre-Crisis Period for Return on Assets (continued)

VIX	0.0006 (0.0004)	0.0004 (0.0004)	-0.0023 (0.0053)	0.0058 (0.0046)	0.0008 (0.0019)	-0.0005 (0.0016)	0.0043** (0.0017)	0.0031 (0.0021)	-0.0002 (0.0008)	-0.0003 (0.0010)
CONSTANT	0.0090 (0.0159)	0.0271* (0.0142)	-0.7272** (0.3233)	-0.9086*** (0.2671)	0.0146 (0.0708)	-0.0268 (0.0696)	0.0856 (0.0512)	0.1064 (0.0805)	0.0481 (0.0327)	0.0376 (0.0390)
Number of Observations	114	114	36	36	34	34	23	23	52	52
R-squared	0.3437	0.7332	0.7639	0.9597	0.5976	0.9594	0.9897	0.9994	0.7751	0.6246
Wald chi-squared	91.11 (0.0000)		42.74 (0.0000)		28.25 (0.0083)		307.03 (0.0000)		58.85 (0.0000)	
F-statistics	3.38 (0.0003)		4.23 (0.0033)		1.94 (0.0996)		51.95 (0.0000)		9.02 (0.0000)	
Hausman Test	2.50 (0.9992)		10.90 (0.6189)		5.72 (0.9294)		16.00 (0.2491)		31.00 (0.0034)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. Hausman test results favor fixed effects for greenfield banks and random effects for no foreign, minority, majority and takeover banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A7. Alternative Model Estimation Results by Mode of Entry for the Post-Crisis Period for Return on Assets										
	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ ASSETS	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	**0.0894*** (0.0152)**	0.1410*** (0.0167)	**-0.0232** (0.0119)**	-0.0319*** (0.0102)	0.0183 (0.0260)	**0.0213 (0.0185)**	**0.0083 (0.0152)**	-0.0027 (0.0155)	**-0.0052 (0.0102)**	0.0277*** (0.0063)
NPL/LOANS	**0.0355 (0.0258)**	-0.1594*** (0.0257)	**0.0743*** (0.0268)**	0.0296* (0.0180)	-0.0939 (0.0586	**-0.1595*** (0.0261)**	**-0.1017*** (0.0303)**	-0.0697*** (0.0270)	**0.0356*** (0.0089)**	0.0132* (0.0076)
FXASSETS/ FXLIABILITIES	**-0.0071** (0.0036)**	0.0045 (0.0033)	**0.0014 (0.0028)**	0.0039 (0.0024)	-0.0224** (0.0100	**-0.0133** (0.0060)**	**0.0079*** (0.0025)**	0.0072*** (0.0023)	**-0.0144*** (0.0059)**	-0.0086** (0.0044)
LIQASSETS/ ASSETS	**-0.0160*** (0.0050)**	-0.0113* (0.0061)	**-0.0093** (0.0047)**	-0.0029 (0.0040)	0.0043 (0.0106)	**0.0035 (0.0080)**	**-0.0272*** (0.0091)**	0.0001 (0.0068)	**-0.0176** (0.0083)**	-0.0071 (0.0071)
INCOME/ EXPENSES	**-0.0781*** (0.0071)**	-0.0790*** (0.0078)	**-0.0242*** (0.0078)**	-0.0265*** (0.0058)	-0.0859*** (0.0192)	**-0.0936*** (0.0185)**	**-0.0341*** (0.0052)**	-0.0404*** (0.0039)	**-0.0370*** (0.0090)**	-0.0494*** (0.0074)
ASSETS/ GDP	**-0.0047 (0.0076)**	-0.0180*** (0.0036)	**-0.0164 (0.0115)**	0.0185*** (0.0037)	-0.0800 (0.0532	**-0.0168* (0.0099**	**-0.0809* (0.0453)**	0.0382*** (0.0095)	**-0.0877 (0.1307)**	-0.2259*** (0.0578)
Host-Country Factors										
GDP	**-0.0064 (0.0112)**	-0.0137 (0.0171)	**-0.0197 (0.0121)**	-0.0220* (0.0127)	-0.0196 (0.0326)	**-0.0317 (0.0324)**	**-0.0229 (0.0171)**	-0.0315* (0.0188)	**0.0033 (0.0435)**	0.0162 (0.0468)
INFLATION	**0.0043 (0.0251)**	-0.0358 (0.0372)	**0.0186 (0.0283)**	0.0219 (0.0287)	-0.0208 (0.0739	**-0.0641 (0.0727)**	**0.0269 (0.0390)**	0.0372 (0.0424)	**0.0069 (0.0968)**	0.0533 (0.1035)
POLICYRATE	**-0.0720*** (0.0279)**	-0.0115 (0.0401)	**-0.0598 (0.0312)**	-0.0696** (0.0316)	-0.0885 (0.0805	**-0.0730 (0.0775)**	**0.0192 (0.0428)**	-0.0375 (0.0436)	**0.1317 (0.1017)**	0.0355 (0.1067)
EXCHANGE	**-0.0001 (0.0041)**	-0.0051 (0.0059)	**-0.0032 (0.0043)**	-0.0061 (0.0045)	0.0032 (0.0110)	**-0.0031 (0.0108)**	**-0.0034 (0.0052)**	0.0004 (0.0057)	**-0.0066 (0.0130)**	0.0023 (0.0139)
Global Factors										
GLOBALGDP	**0.0057 (0.0358)**	0.0390 (0.0534)	**-0.0430 (0.0395)**	-0.0599 (0.0412)	0.1538 (0.1066)	**0.1782* (0.1053)**	**-0.0222 (0.0537)**	-0.0071 (0.0590)	**-0.3435*** (0.1340)**	-0.3803*** (0.1445
GLOBALRATE	**0.9373*** (0.2401)**	0.5054 (0.3492)	**0.2468* (0.1369)**	0.2830** (0.1328)	0.9515 (0.7717)	**1.1099 (0.6887)**	**0.2561 (0.3535)**	0.6145* (0.3703)	**0.1356 (0.8525)**	1.0160 (0.9015)

Table A7. Alternative Model Estimation Results by Mode of Entry for the Post-Crisis Period for Return on Assets (continued)

VIX	**0.0000 (0.0001)**	0.0001 (0.0001)	**0.0002*** (0.0000)**	0.0002*** (0.0000)	0.0000 (0.0002)	**0.0000 (0.0002)**	**0.0000 (0.0001)**	0.0000 (0.0001)	**0.0000 (0.0002)**	-0.0002 (0.0002)
CONSTANT	**0.0254*** (0.0052)**	0.0181*** (0.0052)	**0.0256*** (0.0046)**	0.0185*** (0.0031)	0.0571*** (0.0113)	**0.0500*** (0.0075)**	**0.0188*** (0.0053)**	0.0100** (0.0049	**0.0449*** (0.0108)**	0.0273*** (0.0093)
Number of Observations	**226**	226	**202**	202	103	**103**	**149**	149	**207**	207
R-squared	**0.6731**	0.7254	**0.4353**	0.9854	0.4199	**0.9707**	**0.6768**	0.9518	**0.4386**	0.8909
Wald chi-squared	330.33 (0.0000)		713.66 (0.0000)		**122.31 (0.0000)**		413.17 (0.0000)		342.95 (0.0000)	
F-statistics	**32.47 (0.0000)**		**10.79 (0.0000)**		4.73 (0.0000)		**20.62 (0.0000)**		**11.18 (0.0000)**	
Hausman Test	73.54 (0.0000)		37.44 (0.0004)		8.36 (0.7563)		78.17 (0.0000)		45.10 (0.0000)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. Hausman test results favor fixed effects for no foreign, minority, takeover and greenfield banks and random effects for majority banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A8. Alternative Model Estimation Results by Mode of Entry for the Overall Period for Return on Equity										
	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ EQUITY	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	0.2416*** (0.0632)	**0.1880*** (0.0583)**	-0.7378*** (0.2160)	**-0.6181*** (0.1778)**	-0.0739 (0.0981)	**0.0079 (0.0738)**	**-0.3344** (0.1334)**	-0.3969*** (0.1325)	**-0.1099*** (0.0330)**	-0.1421*** (0.0275)
NPL/LOANS	-0.7378*** (0.1292)	**-0.6060*** (0.1211)**	0.7548* (0.3886)	**-0.1476 (0.2695)**	0.3196 (0.2184)	**-0.1586 (0.1697)**	**-0.4794 (0.3376)**	-0.1298 (0.2820)	**-0.0527 (0.0327)**	-0.0498 (0.0350)
FXASSETS/ FXLIABILITIES	-0.0377 (0.0360)	**-0.0251 (0.0349)**	0.0307 (0.0583)	**0.0461 (0.0455)**	-0.1842*** (0.0527)	**-0.1715*** (0.0357)**	**0.0173 (0.0242)**	0.0494** (0.0228)	**0.0072 (0.0222)**	0.0651*** (0.0211)
LIQASSETS/ ASSETS	-0.0739 (0.0470)	**-0.0910** (0.0434)**	-0.0007 (0.0886)	**0.1022 (0.0716)**	0.1469** (0.0584)	**0.1628*** (0.0548)**	**-0.3331*** (0.0730)**	-0.1869*** (0.0659)	**-0.0479 (0.0373)**	0.1142*** (0.0354)
INCOME/ EXPENSES	-0.6433*** (0.0799)	**-0.6819*** (0.0754)**	-0.5551*** (0.1409)	**-0.3758*** (0.1036)**	-0.3965*** (0.0699)	**-0.3611*** (0.0703)**	**-0.4153*** (0.0453)**	-0.3927*** (0.0389)	**-0.4434*** (0.0453)**	-0.5626*** (0.0425)
ASSETS/ GDP	-0.1806** (0.0810)	**-0.1309** (0.0653)**	0.3897** (0.1846)	**0.0021 (0.0694)**	-0.6855** (0.3120)	**0.0392 (0.0639)**	**-0.3511 (0.5082)**	0.2814*** (0.1016)	**1.3459** (0.6170)**	-0.3075 (0.3123)
Host-Country Factors										
GDP	-0.0451 (0.0881)	**-0.0436 (0.0877)**	0.3701** (0.1848)	**0.2750 (0.1849)**	0.1638 (0.1537	**0.1868 (0.1771)**	**-0.0477 (0.1429)**	-0.0771 (0.1502)	**0.3671** (0.1489)**	0.5153*** (0.1730)
INFLATION	-0.3682 (0.2291)	**-0.3777* (0.2284)**	1.9032*** (0.4413)	**1.7999*** (0.4453)**	0.3101 (0.3786)	**0.1088 (0.4337)**	**0.2227 (0.3499)**	0.3141 (0.3653)	**0.2295 (0.3824)**	0.2887 (0.4465)
POLICYRATE	0.2701** (0.1315)	**0.2541* (0.1299)**	-1.5067*** (0.3460)	**-1.4069*** (0.3459)**	-0.3281 (0.3400)	**0.1036 (0.3478)**	**0.5603 (0.3552)**	0.3579 (0.3439)	**-0.1069 (0.2474)**	-0.2159 (0.2864)
EXCHANGE	-0.0917*** (0.0286)	**-0.0895*** (0.0283)**	0.0506 (0.0578)	**0.0612 (0.0578)**	0.1667*** (0.0484)	**0.1136** (0.0519)**	**-0.0963** (0.0424)**	-0.0824* (0.0435)	**0.0293 (0.0409)**	0.0141 (0.0471)
Global Factors										
GLOBALGDP	-0.0370 (0.3457)	**-0.0006 (0.3444)**	-2.1376*** (0.6839)	**-1.9638*** (0.6835)**	0.3709 (0.5749)	**0.3346 (0.6597)**	**-0.5861 (0.5124)**	-0.5455 (0.5413)	**-1.3489** (0.5506)**	-1.6643*** (0.6434)
GLOBALRATE	0.7906 (0.5104)	**1.0053** (0.5024)**	7.9759*** (1.3745)	**6.5372*** (1.2825)**	3.6085*** (1.3368)	**2.5453** (1.2690)**	**-1.3187 (1.2009)**	-0.6731 (1.1916)	**3.7763*** (0.8996)**	4.6864*** (1.0382)

Table A8. Alternative Model Estimation Results by Mode of Entry for the Overall Period for Return on Equity (continued)

VIX	0.0016*** (0.0004)	**0.0017*** (0.0004)**	0.0004 (0.0008)	**0.0002 (0.0008)**	-0.0006 (0.0006)	**-0.0005 (0.0007)**	**0.0014** (0.0006)**	0.0014** (0.0006)	**0.0003 (0.0006)**	0.0012 (0.0007)
CONSTANT	0.3521*** (0.0468)	**0.3353*** (0.0447)**	0.1516* (0.0822)	**0.1660*** (0.0474)**	0.3040*** (0.0622)	**0.2230*** (0.0421)**	**0.2969*** (0.0453)**	0.2041*** (0.0386)	**0.1860*** (0.0429)**	0.0966** (0.0441)
Number of Observations	340	**340**	238	**238**	137	**137**	**172**	172	**259**	259
R-squared	0.4773	**0.4742**	0.8876	**0.9595**	0.4691	**0.7532**	**0.6475**	0.9242	**0.5761**	0.6708
Wald chi-squared	288.71 (0.0000)		167.13 (0.0000)		144.19 (0.0000)		518.51 (0.0000)		355.56 (0.0000)	
F-statistics	21.72 (0.0000)		5.66 (0.0000)		8.09 (0.0000)		21.34 (0.0000)		24.88 (0.0000)	
Hausman Test	10.16 (0.6805)		9.73 (0.7159)		-10.50 (chi-squared<0)		29.28 (0.0060)		852.77 (0.0000)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. Hausman test results favor fixed effects for takeover and greenfield banks and random effects for no foreign, minority and majority banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A9. Alternative Model Estimation Results by Mode of Entry for the Pre-Crisis Period for Return on Equity

	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ EQUITY	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	-0.3414** (0.1308)	**-0.2857*** (0.1009)**	-2.3172 1.4218	**-2.5363*** 0.9212**	-0.0477 0.2263	**-0.0618 0.1335**	-2.1551 8.1692	**-1.7770 2.8787**	**-0.0453 0.0396**	-0.1305*** 0.0451
NPL/LOANS	0.2783* (0.1574)	**0.2680* (0.1411)**	-2.7592 4.2229	**-2.0528 1.3528**	-1.4768 1.0378	**-1.4854 0.9405**	-14.4500 26.3434	**-7.1071 9.4619**	**-0.0645 0.0529**	-0.0657 0.0614
FXASSETS/ FXLIABILITIES	0.1563 (0.1394)	**0.0357 (0.1006)**	1.8918* 1.0532	**1.0341** 0.4506**	-0.1542 0.2675	**-0.1731 0.1663**	0.1542 1.6554	**0.2917 0.4883**	**-0.0629* 0.0343**	0.0275 0.0326
LIQASSETS/ ASSETS	0.0871 (0.1427)	**-0.0143 (0.0977)**	-2.6562* 1.3543	**0.2947 0.4254**	0.0436 0.2714	**0.1156 0.2358**	-1.0419 4.5387	**-1.1759 1.2544**	**0.3049*** 0.0811**	0.0726 0.0708
INCOME/ EXPENSES	-0.2480 (0.1793)	**-0.3790** (0.1480)**	1.0383 1.4076	**-1.2915* 0.6744**	-0.1525 0.1776	**-0.2077* 0.1090**	0.0891 1.3493	**-0.0575 0.6044**	**-0.7218*** 0.1505**	-0.7230*** 0.1928
ASSETS/ GDP	-0.0972 (0.4375)	**0.2415 (0.1585)**	0.7646 1.8862	**-1.5751** 0.7771**	-2.3665 3.3115	**-0.0232 0.7354**	-4.0256 37.4660	**-1.4094 4.3429**	**0.9127 1.4343**	1.0452 0.7747
Host-Country Factors										
GDP	0.1048 (0.4750)	**-0.0139 (0.4727)**	3.5869** 1.2805	**3.0443** 1.2355**	0.8848 0.6437	**0.9454* 0.5740**	-1.9377 2.5295	**-2.3939* 1.2533**	**0.4358 0.2916**	0.3072 0.3760
INFLATION	0.0811 (1.4015)	**-0.1003 (1.3832)**	5.2401 4.3069	**9.3499** 4.0233**	2.7294 2.0269	**2.1007 1.7179**	-10.9582 61.6059	**-9.5636 18.9293**	**-1.1610 0.9281**	-0.0941 1.1956
POLICYRATE	0.5337 (1.4686)	**0.6978 (1.4339)**	3.1909 3.6860	**-2.3791 3.2545**	1.1381 2.0761	**1.9541 1.5349**	16.9877 104.2584	**13.0006 32.6102**	**0.4166 0.6268**	0.0069 0.7964
EXCHANGE	0.0951 (0.4047)	**0.0279 (0.3905)**	-0.1640 1.2063	**0.9323 1.0413**	0.3052 0.3104	**0.2438 0.2754**	-0.0723 11.9861	**0.4972 4.0600**	**0.0954 0.1964**	0.2026 0.2578
Global Factors										
GLOBALGDP	0.4643 (7.9871)	**-0.6027 (7.7032)**	63.8188 49.8811	**132.1602*** 47.0088**	7.0985 9.6409	**3.0377 6.5771**	-237.1990 1743.7731	**-185.0763 530.1217**	**-3.3280 4.2242**	1.5405 5.0977
GLOBALRATE	1.9111 (4.8697)	**2.9205 (4.7725)**	20.7406 24.8814	**-4.4823 20.1075**	-7.2522 6.7589	**-4.0291 4.6407**	80.4484 724.6424	**53.5335 223.6377**	**2.3378 2.7127**	2.8570 3.4711

Table A9. Alternative Model Estimation Results by Mode of Entry for the Pre-Crisis Period for Return on Equity (continued)										
VIX	-0.0042 (0.0115)	**-0.0051 (0.0111)**	-0.0141 0.0415	**0.0399 0.0349**	-0.0012 0.0101	**-0.0050 0.0074**	-0.0086 0.5138	**0.0143 0.1687**	**-0.0024 0.0043**	0.0017 0.0052
CONSTANT	0.0127 (0.4617)	**0.1363 (0.4502)**	-5.3046* 2.5378	**-7.0240*** 2.0152**	0.0234 0.3805	**-0.0224 0.3317**	6.9155 49.0031	**5.7265 14.6906**	**0.3368** 0.1641**	0.1006 0.2065
Number of Observations	99	**99**	36	**36**	34	**34**	17	**17**	**52**	52
R-squared	0.3492	**0.4473**	0.7499	**0.9578**	0.8835	**0.9982**	0.9539	**0.9738**	**0.6561**	0.9308
Wald chi-squared	**45.09 (0.0000)**		**44.83 (0.0000)**		**75.32 (0.0000)**		**111.54, (0.0000)**		66.83 (0.0000)	
F-statistics	2.85 (0.0025)		3.92 (0.0049)		2.38 (0.04799		1.59 (0.5578)		**4.99 (0.0001)**	
Hausman Test	15.31 0.2251)		8.15 (0.8335)		0.67 (0.6938))		0.12 (0.4568)		51.79 (0.0000)	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. Hausman test results favor fixed effects for greenfield banks and random effects for no foreign, minority, majority and takeover banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.

Table A10. Alternative Model Estimation Results by Mode of Entry for the Post-Crisis Period for Return on Equity										
	NO FOREIGN		MINORITY		MAJORITY		TAKEOVER		GREENFIELD	
PROFITS/ EQUITY	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects	Fixed Effects	Random Effects
Bank-Specific Factors										
EQUITY/ RWASSETS	**1.1417*** (0.1544)**	1.2670*** (0.1357)	-0.2812*** (0.0873)	**-0.3803*** (0.0754)**	-0.2832*** (0.0938)	**-0.2543*** (0.0802)**	0.0364 (0.1347)	**-0.0574 (0.1439)**	**-0.1533*** (0.0493)**	-0.1467*** (0.0371)
NPL/LOANS	**0.3936 (0.2623)**	-1.3870*** (0.2096)	0.4606** (0.1962)	**0.1232 (0.1332)**	-0.0187 (0.3425)	**-1.0805*** (0.1846)**	-0.7038*** (0.2691)	**-0.3660 (0.2502)**	**-0.0302 (0.0430)**	-0.0233 (0.0446)
FXASSETS/ FXLIABILITIES	**0.0508 (0.0370)**	0.1018*** (0.0266)	0.0208 (0.0207)	**0.0421** (0.0180)**	-0.1327** (0.0599)	**-0.2156*** (0.0368)**	0.0445* (0.0226)	**0.0562*** (0.0213)**	**-0.0252 (0.0283)**	0.0813*** (0.0262)
LIQASSETS/ ASSETS	**-0.2085*** (0.0504)**	-0.2240*** (0.0497)	-0.0431 (0.0345)	**-0.0234 (0.0293)**	0.1119** (0.0528)	**0.0388 (0.0553)**	-0.3656*** (0.0809)	**-0.1251** (0.0631)**	**-0.1221*** (0.0401)**	0.1132*** (0.0419)
INCOME/ EXPENSES	**-0.6062*** (0.0723)**	-0.7848*** (0.0633)	-0.1943** (0.0571)	**-0.2270*** (0.0428)**	0.2944*** (0.0920)	**0.1964* (0.1098)**	-0.3162*** (0.0464)	**-0.3436*** (0.0358)**	**-0.3486*** (0.0435)**	-0.5507*** (0.0434)
ASSETS/ GDP	**-0.0945 (0.0771)**	-0.1157*** (0.0292)	-0.1131 (0.0842)	**0.1043*** (0.0274)**	-0.4763 (0.3153)	**0.0970 (0.0660)**	-0.4615 (0.4027)	**0.3922*** (0.0883)**	**2.3025*** (0.6306)**	-0.5239 (0.3410)
Host-Country Factors										
GDP	**-0.1325 (0.1142)**	-0.1452 (0.1393)	-0.1480* (0.0887)	**-0.1593* (0.0937)**	0.2010 (0.1712)	**0.0884 (0.2031)**	-0.1453 (0.1517)	**-0.2078 (0.1741)**	**0.1730 (0.2098)**	0.3989 (0.2758)
INFLATION	**-0.1128 (0.2557)**	-0.4062 (0.3032)	0.0150 (0.2075)	**0.0511 (0.2118)**	-0.0526 (0.4120)	**-0.3245 (0.4805)**	0.2274 (0.3461)	**0.3172 (0.3929)**	**-0.1470 (0.4667)**	0.0487 (0.6106)
POLICYRATE	**-0.5131* (0.2835)**	-0.0926 (0.3266)	-0.3281 (0.2287)	**-0.4482* (0.2335)**	0.0787 (0.4497)	**0.0798 (0.5246)**	0.3022 (0.3802)	**-0.0749 (0.4039)**	**0.1247 (0.4907)**	-0.2813 (0.6293)
EXCHANGE	**0.0518 (0.0412)**	-0.0138 (0.0482)	-0.0220 (0.0312)	**-0.0438 (0.0334)**	-0.0387 (0.0630)	**-0.0858 (0.0739)**	-0.0474 (0.0464)	**-0.0070 (0.0530)**	**-0.0370 (0.0626)**	-0.0212 (0.0821)
Global Factors										
GLOBALGDP	**0.3557 (0.3643)**	0.4670 (0.4354)	-0.1725 (0.2898)	**-0.3287 (0.3041)**	-0.4242 (0.5854)	**-0.1621 (0.6901)**	-0.2192 (0.4771)	**-0.0777 (0.5468)**	**-0.9828 (0.6464)**	-1.4984* (0.8522)
GLOBALRATE	**8.8033*** (2.4414)**	5.9136** (2.8462)	1.8119* (1.0029)	**2.2166** (0.9808)**	-0.9684 (1.9141)	**-2.2718 (2.1154)**	2.1391 (3.1392)	**3.7701 (3.4302)**	**8.7156** (4.1117)**	15.3952*** (5.3165)

Table A10. Alternative Model Estimation Results by Mode of Entry for the Post-Crisis Period for Return on Equity (continued)

VIX	**0.0002 (0.0006)**	0.0010 (0.0007)	0.0009** (0.0003)	**0.0013*** (0.0004)**	0.0010 (0.0007)	**0.0018** (0.0008)**	0.0001 (0.0007)	**0.0000 (0.0008)**	**-0.0005 (0.0010)**	-0.0004 (0.0013)
CONSTANT	**0.0777 (0.0533)**	0.1362*** (0.0422)	0.2121*** (0.0339)	**0.1857*** (0.0226)**	0.1998*** (0.0677)	**0.3285*** (0.0506)**	0.2084*** (0.0473)	**0.1205*** (0.0449)**	**0.2099*** (0.0519)**	0.0409 (0.0546)
Number of Observations	**226**	226	202	**202**	103	**103**	149	**149**	**207**	207
R-squared	**0.6236**	0.9372	0.3892	**0.9759**	0.4678	**0.8984**	0.6707	**0.9137**	**0.6614**	0.7240
Wald chi-squared	642.55 (0.0000)		**786.98 (0.0000**		**131.53 (0.0000**		**395.48 (0.0000)**		299.38 (0.0000)	
F-statistics	**26.13 (0.0000)**		8.92 (0.0000)		5.75 (0.0000)		20.05 (0.0000)		**27.95 (0.0000)**	
Hausman Test	138.24 (0.0000)		3.46 (0.9957)		-35.66 (chi-squared<0)		-2.84 (chi-squared<0)		167.59 (0.0000	

*,**,*** denote statistical significance for p<0.1, p<0.05 and p<0.01, respectively. The statistics for the selected models are shown in bold. Hausman test results favor fixed effects for no foreign and greenfield banks and random effects for minority, majority and takeover banks. Standard errors, probability for Wald chi-squared, F-statistics and Hausman tests are in parenthesis.