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WORKING PAPER

Bank rebranding and depositor loyalty

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Abstract We analyze how rebranding affects depositor discipline in a sample of Turkish banks. Depositor discipline refers to the empirical regularity that banks with higher capitalization attract more deposits at lower cost. Bank rebranding tends to increase depositor discipline, especially when there is only a small cosmetic change to the name. Rebranding a Turkish named bank into a foreign named one is associated with increased depositor discipline. In a similar manner, depositor discipline tends to decrease in the short-run if the bank rebrands from a foreign name to a Turkish one. These results suggest the presence of depositor ethnocentrism. Our main findings are robust to controls for major ownership changes and for selection effects.

Keywords depositor discipline; rebranding; banks

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1. Introduction

For many firms the company name has become an increasingly important channel of corporate communication with its customers (McNamara, 1998). Creating value by building corporate reputation and brand identity has become a strategic priority for many firms, because a good corporate reputation and a strong brand identity help firms to differentiate their product from otherwise identical competing products and therefore boost the loyalty of their customers. Strong brands therefore increase the market share, which enables corporations to reap supra competitive profits if managed properly (Aaker, 1996; Lassar et al., 1995). Furthermore, strong brands add value by increasing the resilience against promotional pressures from incumbent competitors and discourage market entry by new competitors (Farquhar, 1989). Especially for service firms, brand identity plays an important role as it is difficult to differentiate services based on tangible characteristics (Berry, 2000; Mudambi et al., 1997). Branding helps by providing a soft conversion of intangible services to tangible services. As a result, the weight of brand names is considered especially significant in services industries, since it serves as a risk mitigator in consumers' pre-purchase evaluation (Onkvisit and Shaw, 1989). Furthermore, it is noticed that the service brand act as a central element in building a long-term relationship between buyer and seller (Dall'Olmo Riley and de Chernatony, 2000).¹

In the last decades many organizations have pursued a corporate rebranding strategy in order to change their image (Brown et al., 2006; Dacin and Brown, 2002) and identity (Muzellec et al., 2003). Some do so because of mergers and acquisitions (Devlin and McKenchie, 2008), while others want to boost their business by creating a new image/position in the market place (Mishra, 2001; Kilic and Dursun, 2006). Some are looking for a new start after difficult or financially distressed times in order to have positive wealth effects, and still others are trying to create a global brand by harmonizing the brand across national boundaries. According to Muzellec et al. (2003) there are four general drivers for name changes: a change in ownership structure (mergers and acquisitions,

¹ The importance of brands has recently been under the theoretical lens of relationship perspective for understanding consumer-brand interactions (e.g., Swaminathan et al., 2007). Prior research also supports the concept of customer-brand relationship (e.g., Fournier, 1998; Muniz and O'Guinn, 2001; Smit et al., 2007).

spinoffs and demergers, and private to public ownership), a change in corporate strategy (diversification and divestment, internationalization and localization), a change in competitive position (outdated image, erosion of market position, and reputational problems) and a change in the external environment (legal regulation, crises/catastrophes). Whatever the causes of rebranding may be, company representatives hope to achieve an enhanced brand position with a clearer message aimed at customers. However, rebranding may also destroy accumulated goodwill and challenges conventional wisdom with regard to brand equity (e.g., Horsky and Swyngedouw, 1987; Stuart and Muzellec, 2004). Giving up an established brand name is risky business as the abandonment of a well-known, for some, favorite brand can bring feelings of fear and resentment, and consequently loss of market share.

Branding may even be more crucial in the banking sector than in other services industries. Perhaps in no other industry are trust and confidence more vital than in the banking sector. Given banks' nature as financial intermediaries faced with asymmetric information and a maturity mismatch between assets and liabilities, banks are inherently vulnerable to shocks in depositors' perceptions about the bank's quality and therefore always susceptible to bank runs (e.g., Diamond and Dybvig, 1983). According to Tadelis (1999), operating in an environment dominated by information asymmetries makes the corporate brand name the main source of a firm's reputation: perceptions of asset deterioration can, through an extreme form of depositor discipline, trigger a bank run irrespective of ex-ante bank fundamentals, but brand reputation has the potential to mitigate this risk of perceived asset deterioration. The trends towards increasing convergence in financial services and towards multiple banking channel options outside the physical bank may further enhance the pivotal role of branding in the interaction between depositors and financial institutions. The few studies so far of brand importance in the financial services industry are largely of a descriptive or qualitative nature (e.g., Balmer and Wilkinson, 1991; Saunders and Watters, 1993; Devlin and McKechnie, 2008).² Our paper however takes a much more quantitative

² The importance of marketing stimuli on consumer choice preferences under uncertainty, i.e., asymmetric information, has been widely acknowledged in the marketing literature (e.g., Dawar and Parker, 1994; Erdem and Swait, 1998). In particular, the signaling theory, which highlights the critical role of brands as signals, has

approach by assessing empirically whether rebranding in the Turkish banking sector improves or undermines depositor loyalty.

The Turkish banking sector provides an excellent laboratory to test the effect of bank rebranding since the sector has seen a significant number of name changes, and a considerable influx of foreign banks. The findings are somewhat surprising. Bank rebranding generally tends to increase depositor discipline, especially when there is only a small cosmetic change to the name. The effect of bank rebranding on depositor discipline however varies with the direction of name change (foreign to Turkish versus Turkish to foreign) and with time (short run versus long run effects). We find that depositors become more cautious and disciplinary if the bank implements a small change from a Turkish name to another Turkish name. There is also an increase in depositor discipline when a Turkish name is changed into a foreign name, whereas, although in the short-run, we observe that depositor discipline tends to decrease when a foreign name is changed into a Turkish name. The findings suggest that there is a high degree of depositor ethnocentrism: depositors punish new foreign names (when the old name was Turkish), and reward new Turkish names (when the old name was foreign). Robustness tests show us that the essence of our results remains unaltered if we control for major ownership changes and for selection bias.

We organize this article as follows. In Section two, we enumerate previous studies related with our work and provide the main contributions of this paper. In Section three, we describe the sample of banks, present the baseline depositor discipline model, and give the estimation results. In Section four, we interact the bank fundamentals with our core rebranding variables. In Section five, we further focus on depositor ethnocentrism and country-of-origin effects. In Section six, we report robustness checks in which we control for major ownership changes and for selection effects. Finally, our last section will conclude.

been justified by a large body of literature (e.g., Erdem and Swait, 1998; Erdem et al. 2006; Rao et al. 1999). Erdem and Swait (1998) suggest that, under uncertainty, signaling mechanisms of credible brands are important in helping increase perceived quality, and a decrease in perceived risk. Rao et al. (1999) show that customers, in imperfect information structures, perceive the brand as an important indication of product quality. In a cross-country setting, Erdem et al. (2006) confirm that brand credibility effects are more important on consumer brand choice in countries (such as Turkey) characterized with a high degree uncertainty avoidance and collectivism.

2. Contributions and relation to previous work

This paper examines quantitatively whether rebranding in the Turkish banking sector improves or undermines depositor loyalty. Specifically, we pose the question whether a change of the bank's name influences depositor loyalty, independent of other conditions. We measure depositor loyalty in a quantitative way by looking at depositor discipline. By verifying the impact of rebranding on depositor discipline, this paper connects three hitherto separate strands of economic literature.

Firstly, in contrast to the substantial real world activity in corporate rebranding, the empirical literature focusing on the possible effect of name changes is surprisingly sparse, both within and beyond the financial sector. The effect of a name change on firm valuation had been found to be uncertain. In a study of 58 firms with name changes in the 1980s, Horsky and Swyngedouw (1987) find positive valuation effects for firms producing goods, whereas the opposite was true for financial firms. Cooper et al. (2001) report that firms adding "dot.com" references to their brands realized substantial abnormal returns during the Internet bubble period. However, Karpoff and Rankine (1994) find that the shareholder wealth effects at announcement are reversed soon in the post-announcement period. In the case of the financial services industry, there have been only a few case study analyses and customer survey studies.³ In a study of 383 respondents, M'Sallem et al. (2009) find that depositors (in terms of customer's satisfaction) are not affected by rebranding a Tunisian bank after it was acquired by a private foreign bank, which could for example be due to the lack of trust in foreigners or to the lack of alternatives available to Tunisian depositors. In a survey conducted in Southeast Italy, Petruzzellis et al. (2013) show that trust in a bank's brand is important for customer loyalty. Furthermore, previous studies mainly examined the relationship between brand and customer loyalty in the context of electronic banking. For example, Methlie and Nysveen (1999) show for a bank in Norway that loyalty of online

³ In fact, the rebranding literature beyond the financial companies also largely consists of case studies, which limit the generalizability of the findings. Examples of such case studies include retail (Sonenshein 2010), sports teams (Bradbury and Catley 2007), telecommunication (Daly and Maloney 2005), air transport (Herstein et al. 2008), and consulting organizations (Kaikati 2003). We also refer to Miller et al. (2013), who provide an integrative review of the rebranding literature.

bank customers are driven by satisfaction and brand reputation.⁴ Our focus on depositor loyalty contributes to this emerging literature by identifying a new channel through which the value effects of rebranding may run for financial institutions, namely through lowering the cost of funding (lowered depositor discipline implies easier access to finance at a lower price).

Secondly, this study contributes to a growing body of research that examines country-of-origin (COO) and consumer ethnocentrism (CE) effects on the purchase of products or services from foreign versus local brands. In the marketing literature, COO refers to the country with which the brand is associated (Agrawal and Kamakura, 1999), whereas, CE represents “the beliefs held by consumers about the appropriateness, indeed morality, of purchasing foreign-made products” (Shimp and Sharma, 1987, p. 280). Products with foreign brand names are frequently associated with the COO of the brand, while highly ethnocentric consumers have a strong sense of loyalty towards their home country. Ethnocentric consumers favor local alternatives as they believe that buying foreign products/brands hurts the domestic economy and national employment, or is unpatriotic. Several studies have documented that country-of-origin and ethnocentrism may exert a different influence on buying decisions depending upon a country's prosperity. For consumers in developed countries, the combined effects of COO and CE will lead them to a preference for local products or brands (e.g., Bilkey and Nes, 1982; Samiee, 1994; Shimp and Sharma, 1987). In developing countries like Turkey, however, CE and COO may have opposing effects on consumer preferences. In these countries, COO effects will typically lead consumers to foreign products and services from developed countries, as foreign premium brands signal the supposedly superior quality of foreign products and services (e.g., Gürhan-Canli and Maheswaran, 2000, Klein et al., 1998; Klein et al. 2006; Reardon et al., 2005; Supphellen and Gronhaug, 2003). In contrast, CE is associated with more favorable attitudes toward domestic products (see, e.g., Balabanis et al., 2001 for comparing Turkish and Czech samples; Durvasula et al. 1997 for U.S. and Russian samples).

⁴ Recent related papers on banking and loyalty also show that trust and reputation play a prominent role in online relationships (e.g., Yousafzai et al., 2009 and Aldas-Manzano et al., 2011)

Finally, this article also contributes to the depositor discipline literature. Rather than assessing whether corporate name changes affect firm value, we focus on assessing whether these name changes affect the discipline exerted by depositors. The depositor discipline literature provides a valuable tool for the measurement of depositor loyalty, without having to resort to consumer surveys. The idea behind depositor discipline is that depositors actively reward or punish bank riskiness, by demanding higher deposit rates from and supplying fewer deposits to more risky banks. If bank rebranding succeeds in numbing depositor sensitivity to bank riskiness, we consider this as a proof of increased depositor loyalty. By rendering risk-taking more costly to banks, depositor discipline is supposed to restrain banks' incentives to take excessive risk and hence to contribute to the stability of the financial system.⁵ Depositor discipline has been studied extensively in several strands of the literature. The first set of studies is based on the prices and looks for evidence that bank risk is reflected in interest rates or yields (e.g., Evanoff and Wall, 2001; Flannery and Sorescu, 1996; Sironi, 2003). These studies have largely concentrated on developed economies and they generally find a positive relationship between various measures of bank risk and the interest rate paid by the bank. The second set of studies follows the quantity based approach and verifies whether deposit growth is influenced by bank risk (such as, Goldberg and Hudgins, 2002; Maechler and McDill, 2003). These studies generally find that more deposits are entrusted to banks with better fundamentals. The last set of studies combines both approaches. This strand of the literature verifies the presence of depositor discipline by looking at the effect of bank risk on both the price and quantity of deposits (e.g., Park and Peristiani, 1998; Calomiris and Powell, 2001; Disli et al. 2013; Karas et al., 2013). By introducing bank rebranding in this depositor discipline framework, we verify whether bank rebranding is indeed capable of numbing depositors' sensitivity to observed bank risk.

⁵ Especially the introduction of deposit insurance schemes is heavily debated in the depositor discipline literature as these schemes may hamper efficient price formation in deposit markets. The existence of deposit insurance entails a trade-off between greater protection against bank runs and an increasing propensity for moral hazard, hence additional risk taking by banks. The introduction of deposit insurance, however, entails the problem of moral hazard. This problem could pose as banks takes out of proportion risk because insured depositors do not have the appropriate incentives for monitoring banks and to claim an interest payment commensurate with the risk exposure of the bank.

3. Data and baseline model of depositor discipline

This study concentrates on commercial banks in Turkey as they operate relatively homogenous (i.e., providing similar services and using similar resources). Commercial banks in Turkey have traditionally been operating as universal banks offering a broad range of products and services such as deposit-taking, commercial lending, trading financial instruments, insurance, leasing and investment banking. The Turkish banking sector is an increasingly attractive market for foreign investors. The influx of foreign investors gives us a great testing ground for the ethnocentrism and country of origin hypotheses. We collect an unbalanced panel of 73 Turkish banks from the various issues of Banks in Turkey published by the Banks Association of Turkey. This publication includes balance sheets and income and expense statements for these banks from 1980 until 2010. Of the 73 banks, 31 banks are either branches of foreign banks abroad or are foreign subsidiaries (more than 50% of their shares are owned by non-residents), 46 banks are domestically owned commercial banks (more than 50% of their shares are owned by Turkish residents), and 12 banks are classified as state-owned deposit-taking banks (predominantly owned by the Turkish government).⁶ We only use public specific information that is available to depositors.

Our estimation strategy involves full sample estimates for price- and quantity equations. We chose the year 1980 as a starting point because in July 1980, as a result of the financial liberalization program, interest rate ceilings on loans and deposits were removed in order to increase competition in the banking sector. Before liberalization, the banking sector was largely under state control and practically no new banks were allowed to be founded. Furthermore, before 1980, there were interest rate ceilings on deposits and loans and maximum limits on loan sizes in line with the pursued import substitution strategy. The methodological approach is to start by estimating a baseline depositor discipline model and subsequently interact the bank rebranding variables with the bank fundamentals in this

⁶ The sum is more than 73 as we observe for some banks a change in ownership type over the sample period.

framework to assess whether and how bank rebranding affects depositor sensitivity to bank risk. We give a more detailed methodological guidance section by section.

3.1. A baseline model of depositor discipline

We first explore which bank fundamentals depositors focus on when disciplining their banks. In particular, we are looking for bank fundamentals that, when deteriorating, unambiguously lead to deposit outflows and deposit rate hikes. It is indeed important to analyze both the price and quantity reactions to bank risk, as only this joint information yields conclusive evidence of depositor discipline (Park, 1995; Martinez Peria and Schmukler 2001; Ioannidou and de Dreu, 2006, Karas et al., 2013). Only the estimation and interpretation of both quantity and price regressions allows us to disentangle depositor discipline from demand shifts or regulatory shocks. A positive relation between bank risk and deposit rates could for example also reflect a demand effect rather than discipline, with risky banks pursuing a more aggressive expansion strategy to meet new loan demand. But this would be revealed by looking at the quantity regression, where the relation between bank risk and deposit quantity would also be positive in case of a demand effect, and negative in case of true depositor discipline.

We measure the reaction of deposits (Eq. 1) and interest rates (Eq. 2) to bank risk taking, by estimating the following reduced form equations:

$$DEPG_{i,t} = \alpha_i + \alpha_t + \alpha_1 Risk_{i,t-1} + \alpha_2 Controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$IDEP_{i,t} = \beta_i + \beta_t + \beta_1 Risk_{i,t-1} + \beta_2 Controls_{i,t} + \mu_{i,t} \quad (2)$$

The reaction variables are the traditional variables used in the depositor discipline literature: $DEPG_{i,t}$ is the first difference of the log of real deposits for bank i during period t , whereas $IDEP_{i,t}$ is the annual interest expense divided by bank deposits. To avoid non-stationarity, the growth rate of the volume of total deposits is used instead of its levels. Table 1 provides for the sample period 1980-2010 summary statistics of the numerical measures of the dependent variables, bank fundamentals and bank controls. We notice that

the average yearly percentage change in deposits has been positive across banks and over time (15.20%), however, with a high degree of dispersion (59%) showing a substantial difference between minimum and maximum values. On the other hand, the implicit interest rate reveals us that the banking sector has historically paid high interest rates on deposits.

< INSERT TABLE 1 AROUND HERE >

The Risk vector represents the alternative risk measures Equity and Liquidity⁷. This vector is included with a one-year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. Furthermore, this lag structure also helps to reduce potential endogeneity concerns. We introduce accounting measures of bank specific risk in line with the literature (e.g., Martinez Peria and Schmukler, 2001; Demirgüç-Kunt and Huizinga, 2004). Since most banks in our sample are not listed, relying on market information would severely restrict our dataset. The capital ratio (Equity) is the ratio of total equity to total assets. We expect that this variable will have a positive relationship with deposits and a negative linkage with interest rates, *ceteris paribus*. The summary statistics in Table 1 reveal that the average capital ratio in our sample is equal to 12.19%. The Liquidity variable is equal to liquid assets (such as cash, central bank debt and short-term government securities) to total deposits. As this ratio measures the bank's ability to cover deposit withdrawals, we expect a positive relationship with deposits and a negative one with the interest rates. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. Evidence of depositor discipline requires $\alpha_1 > 0$ and $\beta_1 < 0$ for either Equity, Liquidity or both. The disturbance terms $\varepsilon_{i,t}$ and $\mu_{i,t}$ are independently distributed with mean zero and variance $\sigma_{i,t}^2$. Following most prior research, we estimate a model using bank fixed effects, α_i , for the deposit reaction, and β_i , for the interest rate reaction to control for the unobserved heterogeneity across banks. To control for potentially heteroscedastic and potentially correlated error terms within an entity, we

⁷ We have tried other risk measures such as non-performing loans and return on assets but none of them proved to be the parameters used by depositors to discipline banks. In order to avoid potential overspecification problems, as in Demirgüç-Kunt and Huizinga (2004), we decided to proceed with the variables Equity and Liquidity.

estimate heteroscedastic- and autocorrelation consistent standard errors. Furthermore, in all specifications, we include year dummy variables to account for macroeconomic fluctuations and other year-specific effects that might influence the interest rates (i.e., β_t) and growth in deposits (i.e., α_t).

The Controls vector contains other bank specific control variables, which could affect the reaction variables. The Size variable is calculated as the natural logarithm of total assets of a bank expressed in terms of 1987 prices. Representing bank visibility and outreach, the Branches variable is the natural logarithm of the number of bank branches. As a measure of institutional maturity, the Age variable represents the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group regressions.

3.2. Estimation results

We report the estimation results of Eq. 1 and Eq. 2 In Table 2, using the variables Equity and Liquidity separately (columns 1-2 and columns 4-5 for the deposits and interest rate equation, respectively) and in an integrated way (column 3 and column 6 for the deposits and interest rate equation, respectively). An increase in the capital ratio (Equity) is associated with higher deposit growth and lower deposit rates ($\alpha_1 > 0$ and $\beta_1 < 0$), which is direct evidence of depositor discipline⁸. In contrast, higher liquidity, though also associated with higher deposit growth, leads to higher rather than lower interest rates, suggesting a shift of deposit demand rather than depositor discipline. This is not a surprising result as the Turkish banking sector has been historically pressured by the government to finance large budget deficits at high interest rates, disturbing heavily the channeling functions of

⁸ Conversely, depositors will punish banks with a lower capital ratio by decreasing the supply of funds, i.e., raising the average yield on deposits and reducing the quantity of deposits.

financial institutions from the general public to the real private sector (e.g., De Jonghe et al., 2012).

< INSERT TABLE 2 AROUND HERE >

Out of the two risk measures, it turns out that only the capital ratio (Equity) shows convincing evidence of the presence of depositor discipline: depositors are found to be willing to supply more funds to better capitalized banks at lower interest rates. This suggests that the capital ratio provides the most convincing signal of banks' riskiness to depositors. This is not surprising since capitalization is a simple and accessible, but a very powerful indicator of bank risk. Bank capital serves as a secure cushion against declining bank asset values. It is also a signal to outsiders about the solvency position of the bank to face credit, liquidity, operational, off balance sheet, legal, operational and macroeconomic risk. After all, the lower the leverage, the lower the probability of bank failure will be. Consequently, the capital ratio is, more than any other measure, extensively used as a proxy for bank risk taking in depositor discipline studies (Cook and Spellman, 1994; Hannan and Hanweck, 1988; Park and Peristiani, 1998; Martinez-Peria and Schmukler, 2001; Karas et al., 2010).

As for the control variables, larger banks (Size) are on average attracting more deposits while they do not have to pay more interest on deposits. This probably suggests that depositors perceive bigger banks as "too big to fail" about the solvency of their banks, as they perform a key role in the smooth functioning of financial markets and payment system. Alternatively, size could also capture the effect of market power. Furthermore, as evidenced by De Jonghe et al. (2012), larger Turkish banks manage their portfolio risk more efficiently and reach a more optimal risk/return profile. We do not find that banks with many branches (Branches) produce comparative advantage in terms of deposits growth and interest rates. Older banks enter (Age) in all of the estimated specifications with a negative sign in the deposits as well as in the interest rate channel. Apparently, competition for market shares forces newer banks to pursue a more aggressive price strategy in the deposit market. State-owned banks paid higher deposit rates, but still see their share of deposit

market slide downward. Although foreign-owned banks also paid higher interest rates on deposits, it did not improve the growth rate on deposits significantly.

4. Bank rebranding and depositor discipline

The literature on depositor discipline literature often studies whether the introduction of deposit insurance schemes undercuts the disciplining behavior of depositors.⁹ The Turkish government instituted full deposit coverage as a response to the collapse of three small banks on May 5, 1994, to reinstate confidence in the banking system. This blanket guarantee was in place for a substantial amount of time, and was even reinforced during the second major banking crisis in 2000. With the stabilization of the banking sector in the aftermath of the 2000-crisis, the insurance coverage was eventually limited to 50 thousand TL on July 5, 2004, a number that still holds as of today.¹⁰ Önder and Özyildirim (2008) and Disli et al. (2013) provide conclusive evidence that the introduction of such a blanket insurance system was not credible in Turkey, or that depositors still feared costs related to the recovery of deposits in case of failure (i.e., costs due to late payments and the foregone interest earnings).¹¹ Therefore, for purposes of brevity, we do not test the relationship between deposit insurance and market discipline in this paper. Furthermore, we expect that this omission in our empirical strategy will bias our analysis against the finding that market discipline exists (Hasan et al. 2013).

⁹ Most empirical studies do indeed confirm that explicit deposit insurance weaken the need by depositors to monitor banks. Demirgüç-Kunt and Huizinga (2004) find that the presence of a blanket guarantee has a detrimental effect on market discipline, i.e., numbing the sensitivity of interest rates to bank risk taking. Imai (2006) reveals for Japan that the introduction of the coverage limit in April 2002 had a positive effect to the functioning of market forces.

¹⁰ For a detailed discussion about the historical evolution of the Turkish deposit insurance system, we refer to, inter alia, Tanyeri (2010) and Laeven and Valencia (2012).

¹¹ In fact, in developing countries, it is frequently encountered that deposit insurance schemes are not fully credible. Using a sample of banks from Argentina, Chile and Mexico, Martinez Peria and Schmukler (2001) find that small insured depositors still react to bank risk after the introduction of deposit insurance. In addition, Prean and Stix (2011) show that Croatian depositors perceive the safety of their deposits to be relatively low during turbulent times.

We proceed by verifying how depositors respond to bank rebranding decisions within a market discipline framework. If the new name is perceived as being very costly, a superficial facelift and/or an ultimate expression for bank problems, it will generate depositor distrust and suspicion, leading to more pronounced depositor discipline. Depositor discipline will be mitigated however if rebranding is perceived as being credible, persuasive, and re-energizing, leading to more customer loyalty, and competitive differentiation. Therefore, we introduce bank rebranding variables and their interactions with bank capitalization and re-estimate the reduced form quantity –and price equations of the previous section in Eq. 3 and Eq. 4, respectively¹²:

$$DEPG_{i,t} = \quad (3)$$

$$\alpha_i + \alpha_t + \alpha_1 Risk_{i,t-1} + \alpha_2 Risk_{i,t-1} \times \Delta NAME_{i,t} + \alpha_3 \Delta NAME_{i,t} + \alpha_4 Controls_{i,t} + \varepsilon_{i,t}$$

$$IDEP_{i,t} = \quad (4)$$

$$\beta_i + \beta_t + \beta_1 Risk_{i,t-1} + \beta_2 Risk_{i,t-1} \times \Delta NAME_{i,t} + \beta_3 \Delta NAME_{i,t} + \beta_4 Controls_{i,t} + \mu_{i,t}$$

The coefficients α_2 and β_2 identify the change in depositor discipline introduced by bank rebranding. If rebranding indeed numbs depositor sensitivity to bank capitalization, we expect $\alpha_2 < 0$ and $\beta_2 > 0$, while we expect $\alpha_2 > 0$ and $\beta_2 < 0$, if rebranding fuels depositor distrust and discipline instead. In all other cases, the effect of rebranding can be labeled as ambiguous.

As the effects of rebranding may wane over the course of time, it is possible that rebranding produces a different impact in the short-term and in the long-term on loyalty. In order to discriminate between the short-term and mid-to-long term on depositor discipline, we use two versions for each rebranding dummy variable, while keeping other variables unchanged.¹³

¹² We follow a similar empirical strategy to Disli et al. (2013), who exploit the depositor discipline framework to study the reaction of depositors after a bank appoints a former politician. The authors find that the presence of former politicians markedly affect depositor discipline; banks with former parliament members at the helm enjoy reduced depositor discipline, especially if the former politician's party is currently in power. However, this reduction in depositor discipline is partially or fully nullified if the politician is a former cabinet minister, which could be explained by the fact that former ministers were often part of controversial governments and thus generate negative reactions among depositors. Appointing ministers may be less effective at reducing depositor discipline because their presences often signal severe banking problems and because the additional government deposits they bring to the bank often leave upon their departure.

¹³ According to Doney and Cannon (1997) the presence of trust is an acknowledged predecessor of loyalty, as it enables partners to focus on the long-term advantages of their exchange. This is supported by empirical

We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. In further specifications, we analyze whether the impact of bank rebranding on depositor discipline is persistent by setting the rebranding dummy variable equal to 1 for the first six years after the rebranding, and 0 otherwise.

Bank rebranding itself is not a homogenous process. To test properly our rebranding hypotheses, we introduce an increasingly fine rebranding typology. We start by creating a general bank rebranding dummy variable retrieved via the annual bank balance sheet information and historical event information during the lifetime of operating and closed banks, both offered by the Banks Association of Turkey. This dummy variable, ΔNAME , is equal to 1 when a bank changes its name, and 0 otherwise. Secondly, we discriminate (with a subjective judgment) between “small” and “big” name changes. The $\Delta \text{NAME(BC)}$ stands for a “big” name change, and refer to the creation of a completely new name, indicating a radical break away from the past, whereas the “small” name change refers to an evolutionary or cosmetic modification, still including a substantial and recognizable portion, of the old name. Finally, we define $\Delta \text{NAME(AT)}$ and $\Delta \text{NAME(DT)}$ in order to explore whether adding and dropping “Türk, Türkiye” to/from the old name, respectively, is disciplined differently by Turkish depositors. One consequence of depositor ethnocentrism would be that depositors inject funds (withdraw their funds) solely because the new bank name displays (not anymore) nationalistic or patriotic wordplays. For our sample of 73 Turkish banks over the period 1980-2010, we identified 29 different banks changing at least one time their name. Some banks clearly suffered from an identity crisis and engaged in repeated bank rebranding: five banks changed 3 times their names, one bank changed 4 times its name, and one bank even changed 5 times its name. As some of the name changing banks adopted the name change strategy more than one time, we detect in total 49 name changes. We classify 18 of them as “small” name changes, and the other 31 are categorized as “big name” changes. Furthermore, there were 5 cases of adopting “Türk,

evidence which suggest that trust is playing a key role in the development of stable relationships between a service provider and its customers (Rauyruen and Miller, 2007; Dimitriadis and Papista, 2010).

Türkiye” in the new name, whereas 8 situations were classified as dropping “Türk, Türkiye” from the old name when adopting a new name.¹⁴

The results of these three dimensions are presented in Table 3 – Panel A, Panel B and Panel C, respectively. In each panel, columns 1-2 represent the short-term effects, whereas, columns 3-4 represents the mid-to-long-term effects. Furthermore, in each panel, columns 1 and 3 capture the deposits equation, whereas, columns 2 and 4 indicate the interest rate equation.¹⁵

< INSERT TABLE 3 AROUND HERE >

Panel A of Table 3 reveals that the adoption of a new bank name did not make any difference for depositor discipline: the interaction term (Equity \times Δ NAME) does affect neither the deposit quantity nor the deposit rate in both the short run as the long run. In Panel B of Table 3, we add triple-interaction terms, whereby (Equity \times Δ NAME) is multiplied with Δ NAME(BC), in order to verify whether big name changes have another affect than small name changes. In the short-run, we now observe that the coefficient of (Equity \times Δ NAME) is positive in the quantity equation (i.e., the same as the Equity variable), indicating higher depositor vigilance for small incremental changes of the bank name. Indeed, when the bank opts for a small change in its name (Equity \times Δ NAME), a 1% increase in Equity is now associated with 3.9347% (adding up coefficients = 1.4867 + 2.4480) more deposits growth, indicating that depositors are becoming more sensitive to capital. This is, however, not true for big name changes. In the short run and especially in the long run (Panel B - column 1 and 3, i.e., the deposits equation) this higher depositor discipline levels off for big name changes (adding up coefficients: 2.4480 – 2.0120 is not significantly different from 0 in column 1 of panel B; 1.6429 – 1.6074 is not significantly different from 0 in column 3 of panel B). Apparently, slight change to the old name leads to

¹⁴ We have to mention that not only Turkish bank names capture “Türk, Türkiye”, and that this notion can also be included in foreign bank names (for instance in our sample: Türk Boston Bank, or Türk Mitsui Bank).

¹⁵ We estimate the most flexible specification with Equity and Liquidity and full set of interactions. However, in order to facilitate the interpretation of the results, we only report Equity and its interactions with the rebranding variables in the discussion of the results as only Equity proved to be unambiguously leading to depositor discipline (for a similar reporting strategy, see Disli et al. 2013).

persistently higher depositor discipline, whereas a more radical name change has no distinguishable effect on depositor discipline. In Panel C of Table 3, in a similar vein, we verify whether the disciplining of depositors changes by adding/dropping “Türk, Türkiye” to/from the old name when adopting a new name. We notice that adding the portion “Türk, Türkiye” influences depositor discipline neither in terms of deposit quantity nor in terms of deposit price [see the coefficient estimate of $\text{Equity} \times \Delta \text{NAME} \times \Delta \text{NAME(AT)}$], while dropping “Türk, Türkiye” does, quit surprisingly, eliminates the price sensitivity to capitalization in the short as well as the long-run [coefficient estimate of $\text{Equity} \times \Delta \text{NAME} \times \Delta \text{NAME(DT)}$].¹⁶ The incidence of dropping the portion “Türk, Türkiye” when adopting a new name could have different effects for various name change directions (see next section), but the small number of observations does not allow us to test these nuances. We therefore caution for too drastic conclusions based on these results. The sign of the coefficients of our control variables in Table 3 are comparable with the findings of Table 2.

5. Depositor ethnocentrism & country of origin effects

Country-of-origin effects refer to depositors’ beliefs about a country and industry from whom they buy, and this may affect their loyalty towards foreign financial services. This is typically the country where the international headquarter is located and is inherent in certain brands. Depositor ethnocentrism explains why some depositors prefer domestic banks above foreign banks, often without a rational basis (irrespective of bank fundamentals). Country-of-origin and depositor ethnocentrism may explain the loyalty of depositors and their evaluations regarding to foreign brands. In order to test for the combined effects of country-of-origin and depositor ethnocentrism, we discriminate between four types of name changes: $\Delta \text{NAME(TT)}$, i.e., the name change from a local Turkish brand name to another Turkish name; $\Delta \text{NAME(TF)}$, i.e., the name change from a local Turkish brand name to a foreign name; $\Delta \text{NAME(FT)}$, i.e., the name change from a

¹⁶ Specifically, we observe that the demand effects are stronger than supply effects in banks that drop the portion “Türk, Türkiye” when adopting a new name. Risky (less capitalized) banks that drop the portion “Türk, Türkiye” are confronted with a drop in loan applications (probably due to fears for stricter credit standards), demotivating these banks to seek for deposit demand.

foreign brand name to a Turkish name; $\Delta \text{NAME}(\text{FF})$, i.e., the name change from a foreign brand name to another foreign name. Of the 49 name changes, we classify 18 changes as $\Delta \text{NAME}(\text{TT})$, 8 changes as $\Delta \text{NAME}(\text{TF})$, 6 changes as $\Delta \text{NAME}(\text{FT})$, and finally 17 name changes as $\Delta \text{NAME}(\text{FF})$. The fact that almost all of the name changes from and within the pool of foreign names consists only of Western names (i.e., European, U.S., and Japanese) allows us to verify whether Turkish depositors are aware of country-of-origin attributes.

We introduce these four directions of brand name changes and their interactions with bank capitalization in our baseline model and estimate the following reduced form equations:

$$\begin{aligned} \text{DEPG}_{i,t} = & \quad (5) \\ & \alpha_i + \alpha_t + \alpha_1 \text{Risk}_{i,t-1} + \alpha_2 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{TT})_{i,t} + \alpha_3 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{TF})_{i,t} + \\ & \alpha_4 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{FT})_{i,t} + \alpha_5 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{FF})_{i,t} + \alpha_6 \Delta \text{NAME}(\text{TT})_{i,t} + \\ & \alpha_7 \Delta \text{NAME}(\text{TF})_{i,t} + \alpha_8 \Delta \text{NAME}(\text{FT})_{i,t} + \alpha_9 \Delta \text{NAME}(\text{FF})_{i,t} + \alpha_{10} \text{Controls}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

$$\begin{aligned} \text{IDEP}_{i,t} = & \quad (6) \\ & \beta_i + \beta_t + \beta_1 \text{Risk}_{i,t-1} + \beta_2 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{TT})_{i,t} + \beta_3 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{TF})_{i,t} + \\ & \beta_4 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{FT})_{i,t} + \beta_5 \text{Risk}_{i,t-1} \times \Delta \text{NAME}(\text{FF})_{i,t} + \beta_6 \Delta \text{NAME}(\text{TT})_{i,t} + \\ & \beta_7 \Delta \text{NAME}(\text{TF})_{i,t} + \beta_8 \Delta \text{NAME}(\text{FT})_{i,t} + \beta_9 \Delta \text{NAME}(\text{FF})_{i,t} + \beta_{10} \text{Controls}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

The coefficients of interaction terms in Eq. 5 (respectively Eq. 6) capture the changes in sensitivity of deposits growth (resp., interest rates) to bank capitalization due to bank rebranding. Depositor sensitivity to bank capitalization is numbed if the coefficients of interaction terms are estimated negatively in Eq. 5 and positively in Eq. 6. Conversely, depositor discipline is boosted by bank rebranding when the coefficients of interaction terms turn out to be positive in Eq. 5 and negative in Eq. 6. Each direction classification is a vector of two separate dummy variables, as we again differentiate between short run and long run effects of name changes on depositor discipline.

< INSERT TABLE 4 AROUND HERE >

Table 4 – Panel A displays the estimation results of Eq. 5 and Eq. 6. We do not observe any effect on depositor discipline when a Turkish bank name changes into another Turkish bank name (see the estimated coefficients of the interaction term $\text{Equity} \times \Delta \text{NAME}(\text{TT})$ for different specifications). If we disentangle small and big name changes within the group of Turkish to Turkish rebranding¹⁷ (see Panel B, coefficient for $\text{Equity} \times \Delta \text{NAME}(\text{TT})$ and $\text{Equity} \times \Delta \text{NAME}(\text{TT}) \times \Delta \text{NAME}(\text{TT}, \text{BC})$), we find again that small name changes seem to have an immediate and persistent wake-up call effect on depositors, while more drastic rebranding decisions do not.

When a Turkish bank name is rebranded into a foreign bank name, our results indicate a persistent increase in depositor discipline (coefficients of the interaction term $\text{Equity} \times \Delta \text{NAME}(\text{TF})$ for different specifications). On average, a 1% increase (decrease) in Equity is associated with a 1.481% increase (decrease) in deposits growth. In the short run, when a Turkish bank name is changed to a foreign name ($\text{Equity} \times \Delta \text{NAME}(\text{TF})$), this 1% increase in Equity is now associated with 3.6813% (adding up coefficients = 1.4813 + 2.2000) in deposits growth, indicating that depositors are becoming more sensitive to capitalization. In a similar manner, if a bank increases its capital ratio with 1%, depositors ask 0.4074% less interest rate. In the interest rate equation, changing the Turkish name to a foreign name increases the sensitivity to bank risk to 0.7567% (adding up coefficients = -0.4074 - 0.3493). Over the mid-to-long period, we can derive the same conclusions. Taking into account that most of these new foreign bank names are Western names, this finding suggest that the effects of consumer ethnocentrism surpass the opposing country-of-origin effects. Apparently, the sudden “foreignness” of a bank makes depositors more rather than less vigilant about the bank’s institutional quality, as expressed by its capitalization.

Reversely, when a foreign bank name is changed into a Turkish name [coefficient estimate of the interaction term $\text{Equity} \times \Delta \text{NAME}(\text{FT})$, column 2] the sensitivity of deposit rates to bank risk is eliminated in the short run. Again, we relate this finding to the heavier weight

¹⁷ Of the 18 name changes within the Turkish to Turkish pool, small and big name changes are evenly split.

of ethnocentric attributes.¹⁸ In the mid-to-long run, however, we observe that this decrease in depositor discipline fades away in the interest rate equation, and that there is even evidence of increased depositor discipline in the quantity regression (coefficient estimate of the interaction term $\text{Equity} \times \Delta \text{NAME(FT)}$, panel A, columns 3 and 4). Apparently, banks engaged in rebranding from foreign to domestic names, eventually lose the positive affect of depositors as they seemingly do not satisfactorily redeem the commitment implicit in the signal of the new domestic name.

Finally, we observe a reduction in depositor discipline when a foreign bank name changes into another foreign bank name in both the short and mid-to-long run but only in terms of deposit rates [coefficients of the interaction term $\text{Equity} \times \Delta \text{NAME(FF)}$ for different specifications]. In sum, we observe that the opposing effects of both COO and CE yield a complex picture, varying with the direction of name changes, the magnitude of name changes and time. Our findings in Table 4 provide evidence that a name change creates negative depositor attitudes and breeds increased depositor vigilance, unless this name change is within the pool of Turkish to Turkish (no effect on depositor discipline) or foreign to foreign changes (drop in depositor discipline through interest rates). There is also clear and consistent evidence that CE effects dominate COO effects in the Turkish banking market. Last, small name changes are related to increased depositor discipline, while more drastic rebranding has no such effect. One possible explanation is that a radical break with the past is perceived as a more credible signal of the bank's capability to (re)build its reputation.¹⁹

6. Extensions and robustness checks

In the previous specifications, no restrictions were placed on the sample in order to draw general conclusions. The original sample consisted of both rebranded and non-rebranded

¹⁸ Specifically, we again observe that the demand effects are stronger than supply effects in banks that change their foreign name into a Turkish one. When these banks are risky (less capitalized) they are in fact confronted with a drop in loan applications, hence demotivating them to seek for deposit demand.

¹⁹ Making the divide between minor and major name changes, Bosch and Hirschey (1989) also find that, unlike minor name changes, major name change announcements cause positive valuation effects.

financial intermediaries for the period 1980-2010. It cannot be excluded therefore that part of our results are driven by selection. If banks with an unobserved problem are more likely to rebrand at the moment their problem is revealed, this may yield a spurious correlation between rebranding and increased depositor discipline. To limit the unobserved heterogeneity that may be correlated with both the depositor reaction to bank risk and bank rebranding, we first restrict our estimation sample to only banks that have rebranded in the sample period. In Table 5 and Table 6 we reproduced Table 3 and Table 4, respectively, with the reduced sample. Although the number of bank-year observations drops markedly from 1306 to 568, the results are very similar in terms of the signs and relative significance of the coefficients. We still find that Equity is the main channel that depositors rely on in disciplining banks. We again find that depositors punish banks for changing their names, unless this was a major name change. We find a domestic country bias when Turkish bank names are changed into foreign names (more discipline, in both short and long run), and when foreign names are changed into Turkish names (less discipline, in the short run). We put forward that depositor ethnocentrism, i.e., negative beliefs regarding the appropriateness of purchasing services from foreign banks, may be an important variable in explaining these results.

< INSERT TABLES 5 & 6 AROUND HERE >

Secondly, we also want to verify whether our findings are not confounding rebranding with changes of control. Therefore, as an alternative robustness check, we include in our model an additional control variable Δ OWN for major bank ownership changes. A major ownership change occurs when the bank's current shareholders passes a particular threshold of 50% of equity. Not every rebranding case is caused by ownership change and not every ownership change resulted in rebranding either. Furthermore, there exists a discrepancy between the timing of ownership change and timing of rebranding. In the previous specifications, we already controlled for the timing of rebranding since we introduced short and long run effects for different rebranding variables. We create another two dummy variables discriminating between short and long run effects of ownership

changes; and introduce them in our equations as separate dummy variables.²⁰ In Table 7, Panels A-C, we replicate the estimations in Table 3, Panels A-C, respectively, but, in addition, include the interaction variable $\text{Equity} \times \Delta \text{OWN}$ (for testing whether the sensitivity of depositors to risk changes when there is a major ownership change) and the independent dummy variable ΔOWN . Our previous results remain largely valid for this specification. A name change still tends to increase depositor discipline (relying on the results of Panel B), while an ownership change tends to decrease depositor discipline (in the long-run).

< INSERT TABLE 7 AROUND HERE >

In Table 8, Panels A-B, we reproduce our estimates in Table 4, Panels A-B, respectively. In addition, we include ownership change dummy variables that are similarly defined as the different categories of rebranding dummy variables: $\Delta \text{OWN}(\text{TT})$ is when Turkish owners sell the bank to other Turkish owners; $\Delta \text{OWN}(\text{TF})$ is when Turkish owners sell the bank to foreign owners; $\Delta \text{OWN}(\text{FT})$ is when foreign owners sell the bank to Turkish owners; and $\Delta \text{OWN}(\text{FF})$ is when foreign owners sell the bank to other foreign owners. We confirm that our findings for the different interactions between Equity and the direction of name changes are similar to our previous results. This indicates that changes in depositor discipline after a bank adopts a new name are not fully driven by major ownership changes. In fact, with the introduction of ownership interactions, we observe that the effects of country-of-origin and consumer ethnocentrism become more distinct. Specifically, for the Turkish to foreign classification, it seems that ethnocentric behavior largely emerges through rebranding, while country-of-origin perceptions especially transcend through ownership changes. If we look at Turkish to foreign name changes in the short term, we notice that a name change without an ownership change sharply increases market discipline, i.e. the sensitivity to bank capital. Column 1 of Table 8 shows that the interaction

²⁰ Significant ownership changes over time are traced via The Banks Association of Turkey, which offers main historical events during the lifetime of operating and closed banks. Furthermore, significant ownership changes are relatively easy traceable through other sources as the Turkish banking sector has been traditionally characterized by a highly concentrated family ownership structure. This is why data from The Banks Association is double checked and completed where necessary with historical information from miscellaneous data sources, such as websites of banks and archives from the financial pages of *Milliyet*, a national daily.

term $\text{Equity} \times \Delta \text{NAME(TF)}$ enters the deposit equation with a statistically significant and large positive coefficient (1.4936 + 8.804). However, this increased sensitivity is largely annihilated if the name change is accompanied with a change from domestic to foreign ownership (1.4936 + 8.804 – 7.5229). Anecdotal evidence also appears to support these findings. In 2005, after the Dutch-Belgian corporation Fortis Group purchased 89.34 percent shares of Disbank, the bank decided to change its name to Fortis Bank A.S. In 2006, seventy-five percent of Denizbank's were transferred to the French-Belgian partnered Dexia Group, but in this case, the buyer retained the name of the acquired company. Although both foreign parent companies were heavily affected by the global financial crisis, Denizbank recorded a real growth rate for deposits of 14.79% for the period 2006-2010, while the growth rate for the deposits of Fortis Turkey was only 2.02% for the period 2005-2010.²¹ We draw the same conclusions for the interest rate equation, i.e., a heavier increase in market discipline when a name change from Turkish to foreign is unaccompanied with a change in ownership (–0.4146 – 3.5388 versus –0.4146 – 3.5388 + 3.1422). On average, apparently depositors perceive major ownership changes as a more credible commitment to engage in less risky activities than rebranding.

< INSERT TABLE 8 AROUND HERE >

In the previous estimates, we included bank-specific effects in order to control for unobserved bank heterogeneity. However, there could still be unobserved time-varying bank-specific variables that affect both deposit growth and deposit rates and the bank's propensity to change its name. If there is a selection problem, standard linear regression may produce biased estimates for the effects of name changes on deposit growth and deposit rates. In line with Campa and Kedia (2002) and Villalonga and Amit (2006), we employ the Heckman (1979) two-stage treatment procedure to address this potential selection bias. Specifically, we employ a two-step random effects parametric approach as discussed by Vella and Verbeek (1999), which is an extension of Heckman's two step procedure to a panel data context. We build on the previous analysis, in which we

²¹ The average sectorial real growth rate for deposits was 9.56% for the period 2005-2010 (9.23% for the period 2006-2010).

additionally included ownership changes. In the first stage, the name change variable is regressed against the same control variables as in the previous model as well as against three additional variables that distinguish between banks that change their names and those that do not (i.e., conditioning variables). To assess the prevalence of self-selection, the main equations include a correction factor based on inverse Mill's ratios (Heckman's Lambdas, λ) constructed from the estimates from the first-stage probit.²² We estimate for both the short-run as the long-run a probit model for each rebranding typology to identify the determinants of each type of name change.²³ The explanatory variables in these selection equations are all lagged by one year, and the conditioning variables include two measures for corporate soundness (z-score and liquidity, see Kapferer 2008, Muzellec et al. 2003), and a measurement for capturing multimarket contact (Shankar 1999, Bronnenberg 2008). The z-score is calculated as $\frac{\text{Mean}(EQ/TA+ROA)}{\text{St.Dev.}(ROA)}$, i.e., the average capitalization $\left(EQ/TA = \frac{\text{Equity}}{\text{Total Assets}}\right)$ and return on assets (ROA) during the four preceding years over the 4-year standard deviation of the return on assets.²⁴ Banks with lower z-scores are considered to be more risky, i.e., have a shorter distance to default. Secondly, the Liquidity variable is a measure of the bank's ability to meet its short-term obligations and it is computed as the ratio of liquid assets to total deposits. Thirdly, bank-rebranding efforts are usually associated with the ability to attract or retain depositors. In particular, banks may pursue a rebranding strategy in order to invoke deposit growth along the intensive margin (the response of current depositors to changes in bank name) as well as the extensive margin (additional customers who deposit their money at the rebranded bank) of deposits supply. The theory of multimarket contact suggests that mutual forbearance will show up when the correlation between two firms is high in terms of geographical coverage. For example, a bank branch that pursues an aggressive growth strategy in a particular region may trigger retaliatory actions by rivals not only in that region but also in other regions. The introduction of a new brand may depend on whether the bank is in contact with its

²² Notice that the model allows for the same control variables included in selection as well as main equations, control variables that only influence the main model of market discipline, and for identifying variables whose influence is limited to the endogenous rebranding variables.

²³ For each rebranding typology, we thus have two probit regression estimates: one in the short-run and the other one in the long-run.

²⁴ To avoid losing observations over the sample period 1980-2008, our z-scores run from 1977 onwards.

competitors in other markets as well, and may be less likely if strong reactions are expected.^{25/26}

< INSERT TABLE 9 AROUND HERE >

Irrespective of the direction of the name change, we generally find that banks with high MMC are less inclined to change their names when, which is consistent with the theory of mutual forbearance in multimarket settings. We also find that rebranding from a foreign name to a Turkish bank name is more often observed when these banks are insolvent and illiquid. In the short-run, liquidity problems also explain the rebranding from a foreign name to another foreign name. Furthermore, in each probit regression, we include a change in ownership correlate, which corresponds to the definition of the dependent rebranding variable. For instance, for $\Delta\text{NAME}(\text{TF})$ and $\Delta\text{NAME}(\text{FT})$ typologies we, respectively, use $\Delta\text{OWN}(\text{TF})$ and $\Delta\text{OWN}(\text{FT})$ as independent variables. Far more than

²⁵ On the bank-level, we measure multimarket contact (MMC) by considering the number of geographical contacts between banks (De Bonis and Ferrando 2000; Coccoresse and Pellechia 2009; Aysan et al. 2013). Let D_{ij} be equal to 1 if bank i operates in province j , and 0 otherwise, for $i = 1, \dots, n$, and $j = 1, \dots, m$. We construct a symmetric $(n \times n)$ matrix $A = (a_{ik})$, where its generic element $a_{ik} = \sum_{j=1}^m D_{ij}D_{kj}$ represents the number of markets in which bank i meets bank k , while the diagonal element a_{ii} measures the number of markets serviced by bank i . However, as in some markets the interactions between banks is heavier, we introduce a quadratic weighting structure by using the market shares in the calculation of multimarket contact. Therefore, we first produce an $(n \times m)$ matrix, with its generic element representing the share of the number of branches of bank i in market j , calculated as $S_{ij} = B_{ij}/\sum_{i=1}^n B_{ij}$. We proceed with the calculation of a symmetric $(n \times n)$ matrix $R = (r_{ik})$, where $r_{ik} = \sum_{j=1}^m S_{ij}S_{kj}$ is a weighted measure that captures the relative importance of bank i and bank k in the respective markets. In one specific year t , our indicator of multimarket contact for bank i is calculated as $\text{MMC}_i = \frac{\sum_{k \neq i} r_{ik} \delta_{ik}}{\sum_{k \neq i} \delta_{ik}}$, where $\delta_{ik} = \begin{cases} 1 & \text{if } a_{ik} > 0 \\ 0 & \text{if } a_{ik} = 0 \end{cases}$. We repeat this calculation for every period t , so to arrive at $\text{MMC}_{i,t}$.

²⁶ The presence of these three variables in the selection equation is appropriate for the following reasons. The z-score is a condense measure of bank stability. It is unobservable to depositors as they have neither access to the information needed for its calculation nor the sophistication to do so or to interpret the results. However, banks are more aware of their potential instability and health problems may reach a critical point at which a redefinition of the business model is called for, often symbolized by a new name (Muzellec et al. 2003). We apply the same reasoning for the liquidity variable; banks with liquidity problems, which are often caused by an erosion of deposit base, may want to reinstate confidence among depositors by turning a new page using the rebranding device. Banks with higher liquidity also have higher deposit growth rates and higher deposit rates (see the findings in Section 2), which implies that liquidity is a demand and not a supply shifter. So, although liquidity is separately related to deposit rates and deposit growth, it is not related to the market discipline we are after in this paper (see also Disli et al. 2013). Introducing a new bankname can be viewed as an attempt to retain their current customers or to attract new customers from competitors (Lam et al. 2010). However, in a multimarket setting, banks should take into account that the introduction of a new brand may invoke possible retaliatory actions by competitors. Shankar (1999) has shown that the introduction of a brand and the related advertising spending is lower if the firm has high multimarket contact with its competitors.

instrumental variables, it seems that much of the variation in rebranding is attributable to ownership changes. This finding confirms earlier evidence and suggestions that rebranding cases follow a change in ownership (e.g., Devlin and McKenchie, 2008; Muzellec and Lambkin 2006; Kapferer, 2008). The fitted values from the first-stage probit are then employed to generate the correction parameter for self-selection (inverse of Mill's ratio). In the second stage analysis, we include the inverse of Mill's ratios. We confirm our previous findings that a general rebranding is ineffective, hence does not involve a change in depositor loyalty. As the effect of bank rebranding on depositor discipline varies with the direction of name change and with time (short run versus long run effects), we differentiate between these choices, and include simultaneously the inverse of Mill's ratios (i.e., lambdas): for changing name within the pool of Turkish names, for changing name within the pool of foreign names, and for name changes between these two pools (see also Disli et al. 2013). Although the inverse of Mill's ratios reveals that sample selection is important in most regression models, our previous findings remain largely unaffected by their inclusion.²⁷ We again find that depositors do not like small Turkish name changes, and that they exert more discipline to their bank when it drops its Turkish name and adopts a foreign name, unless this name change is accompanied with a change in ownership from domestic to foreign control.

7. Conclusions

Giving corporations a new name is a complicated issue that deserves a study from a variety of different perspectives. Rather than evaluating the impact of rebranding through case study analysis or shareholder wealth effects, we attempt to extend our knowledge of the impact of bank rebranding on depositor loyalty by employing a depositor discipline framework. This approach allows us to verify how the average depositor reacts on the rebranding of a bank. In particular, we examine whether rebranding influences the

²⁷ Significant positive lambdas imply that factors that induce rebranding to self-select into particular bank-years are related to higher deposit growth (or an increase in the implicit interest rate).

sensitivity of depositors to bank risk. Depositor discipline is the pressure applied by depositors on banks through interest rates and deposit volumes in function of banks' riskiness. In this framework, rebranding is perceived as effective if it numbs the sensitivity of depositors to bank riskiness, while the rebranding is ineffective or even counterproductive if depositor vigilance is boosted instead.

The findings are somewhat surprising. Our results indicate that, in general, depositors show emotional attachment to legacy brands. Bank rebranding is ineffective at best and is in the worst case counterproductive. In the few cases we find positive effects of rebranding, in terms of receiving more deposits or paying lower interest rates, these tend to be short lived. The effect of bank rebranding on depositor discipline however varies with the direction of name change (foreign to Turkish versus Turkish to foreign) and with time (short run versus long run effects) We find that depositors become more cautious and increase discipline if the bank implements a small cosmetic change from a Turkish name to another Turkish name. There is also an increase in depositor discipline when a Turkish name is changed into a foreign name, whereas, although in the short-run, we observe that depositor discipline tends to decrease when a foreign name is changed into a Turkish name. The findings suggest that there is a high degree of depositor ethnocentrism. Depositors punish new foreign names (when the old name was Turkish), and reward new Turkish names (when the old name was foreign). Robustness tests show us that our results are not driven by major ownership changes or by selection bias.

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Table 1: Summary statistics

	Description	Mean	Std. Dev.
Market reaction			
DEPG	The first difference of the log of real (expressed in 1987 prices) deposits	0.1524	0.5896
IDEF	Annual interest expenses to deposits	0.2846	0.3155
Risk variables			
Equity	Ratio of book value of equity (assets - liabilities) to total assets	0.1219	0.1361
Liquidity	Ratio of liquid assets (cash, central bank debt, and short term securities) to total deposits	1.6120	2.9628
Control variables			
Size	Natural logarithm of the book value of total assets (expressed in 1987 prices)	12.2708	2.0602
Branches	Natural logarithm of the total number of bank branches	2.9893	2.2237
Age	The number of years the bank exists	37.7822	32.2930
State banks	Banks that are predominantly owned (>50% of shares) by the government	0.1316	0.3382
Foreign banks	Either branches of international operating banks, or banks predominantly owned by non-residents	0.3348	0.4721

Table 2: Testing for the presence of depositor discipline

The estimated model for Spec.1 – Spec.3 is $DEPG_{i,t} = \alpha_i + \alpha_t + \alpha_1 Risk_{i,t-1} + \alpha_2 Controls_{i,t} + \varepsilon_{i,t}$. The dependent variable DEPG is calculated as the first difference of the log of real deposits. The estimated model for Spec.4 – Spec.6 is $IDEP_{i,t} = \alpha_i + \alpha_t + \alpha_1 Risk_{i,t-1} + \alpha_2 Controls_{i,t} + \mu_{i,t}$. The variable IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents the alternative risk measures Equity and Liquidity. The Equity is book value of equity (assets – liabilities) to total assets. The liquidity ratio (Liquidity) is equal to liquid assets (such as cash, central bank debt and short term government securities) to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables (i.e., α_i) are included in all specifications but their coefficient estimates are not reported. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	DEPG			IDEP		
	(1)	(2)	(3)	(4)	(5)	(6)
Equity	1.8520*** (0.295)		1.5721*** (0.298)	-0.2523** (0.118)		-0.3590*** (0.096)
Liquidity		0.0701*** (0.011)	0.0577*** (0.013)		0.0193** (0.007)	0.0221*** (0.007)
Size	0.1339** (0.056)	0.0788 (0.059)	0.1081* (0.060)	0.0200 (0.017)	0.0170 (0.016)	0.0103 (0.016)
Branches	-0.0055 (0.050)	-0.0159 (0.059)	0.0256 (0.058)	-0.0305 (0.022)	-0.0090 (0.020)	-0.0184 (0.021)
Age	-0.0198 (0.013)	-0.0079 (0.011)	-0.0197* (0.011)	-0.0099*** (0.003)	-0.0125*** (0.003)	-0.0098*** (0.003)
State banks	-0.4836*** (0.165)	-0.3648** (0.151)	-0.4408*** (0.162)	0.1759** (0.077)	0.1743** (0.073)	0.1916** (0.082)
Foreign banks	-0.0303 (0.080)	-0.1220 (0.101)	-0.0698 (0.093)	0.1300* (0.076)	0.1235* (0.066)	0.1116* (0.065)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,306	1,306	1,306	1,310	1,306	1,306
R ²	0.202	0.192	0.250	0.169	0.191	0.206

Table 3:**Impact of general rebranding on depositor discipline – full sample.**

The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents Equity and Liquidity. The Equity is book value of equity to total assets. The Liquidity ratio is equal to liquid assets to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are: Δ NAME is equal to 1 when a bank changes its name, and 0 otherwise; Δ NAME(BC) is a “big” name change and is equal to 1 when there is a completely new name created indicating a radical break away from the past, and 0 otherwise; Δ NAME(AT) is equal to 1 when a bank adopts the portion “Türk, Türkiye” to its new name, and 0 otherwise; Δ NAME(DT) is equal to 1 when a bank drops “Türk, Türkiye” from the old name when adopting a new name, and 0 otherwise. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variables, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B				Panel C			
	Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.4911*** (0.268)	-0.4053*** (0.084)	1.4833*** (0.248)	-0.3729*** (0.081)	1.4867*** (0.270)	-0.4233*** (0.088)	1.4706*** (0.252)	-0.3861*** (0.084)	1.4924*** (0.269)	-0.4189*** (0.083)	1.4786*** (0.248)	-0.3893*** (0.082)
Equity x Δ Name	0.7625 (0.519)	0.3124 (0.395)	0.4473 (0.594)	0.0686 (0.311)	2.4480* (1.364)	0.7951 (0.983)	1.6429* (0.851)	0.3228 (0.404)	0.9167* (0.461)	-0.0057 (0.348)	0.2730 (0.631)	-0.0931 (0.243)
Equity x Δ Name x Δ Name(BC)					-2.0120 (1.426)	-0.3871 (0.978)	-1.6074* (0.947)	-0.1994 (0.437)				
Equity x Δ Name x Δ Name(AT)									-0.3942 (2.914)	1.4346 (1.371)	2.8927 (2.967)	-0.2280 (0.502)
Equity x Δ Name x Δ Name(DT)									-0.0756 (1.249)	1.1132* (0.512)	0.6542 (1.513)	1.1407** (0.470)
Size	0.1195** (0.058)	0.0114 (0.016)	0.1141** (0.056)	0.0107 (0.017)	0.1184** (0.058)	0.0172 (0.015)	0.1158** (0.054)	0.0170 (0.017)	0.1192** (0.059)	0.0123 (0.016)	0.1152** (0.057)	0.0125 (0.016)
Branches	0.0081 (0.051)	-0.0213 (0.021)	0.0151 (0.050)	-0.0194 (0.021)	0.0076 (0.051)	-0.0244 (0.020)	0.0101 (0.046)	-0.0236 (0.021)	0.0109 (0.051)	-0.0221 (0.021)	0.0183 (0.051)	-0.0214 (0.021)
Age	-0.0216** (0.011)	-0.0098*** (0.003)	-0.0216** (0.010)	-0.0099*** (0.003)	-0.0216** (0.011)	-0.0093*** (0.003)	-0.0217** (0.010)	-0.0096*** (0.003)	-0.0218** (0.011)	-0.0098*** (0.003)	-0.0215** (0.010)	-0.0100*** (0.003)
State banks	-0.4140*** (0.148)	0.1982** (0.082)	-0.4178*** (0.152)	0.1941** (0.081)	-0.3977*** (0.134)	0.2206*** (0.081)	-0.4247*** (0.153)	0.2064** (0.078)	-0.4000*** (0.139)	0.1956** (0.083)	-0.4147*** (0.152)	0.1940** (0.082)
Foreign banks	-0.0630 (0.091)	0.1179* (0.063)	-0.0654 (0.089)	0.1129* (0.064)	-0.0551 (0.085)	0.1062** (0.052)	-0.0662 (0.083)	0.1055* (0.055)	-0.0520 (0.086)	0.1328* (0.069)	-0.0363 (0.085)	0.1241* (0.062)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306
R ²	0.270	0.208	0.265	0.206	0.272	0.239	0.271	0.224	0.277	0.221	0.270	0.224

Table 4:**Impact of different typologies of rebranding on depositor discipline – full sample.**

The dependent variables are DEPG and IDEP. The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents the alternative risk measures Equity and Liquidity. The Equity is book value of equity to total assets. The liquidity ratio (Liquidity) is equal to liquid assets (such as cash, central bank debt and short term government securities) to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are $\Delta \text{NAME}(\text{TT})$, $\Delta \text{NAME}(\text{TF})$, $\Delta \text{NAME}(\text{FT})$, $\Delta \text{NAME}(\text{FF})$, $\Delta \text{NAME}(\text{TT}, \text{BC})$ and $\Delta \text{NAME}(\text{FF}, \text{BIG})$. $\Delta \text{NAME}(\text{TT})$ equals to 1 when there is name change from a local Turkish brand name to another Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{TF})$ equals to 1 when there is name change from a local Turkish brand name to a foreign name, and otherwise 0; $\Delta \text{NAME}(\text{FT})$ equals to 1 when there is name change from a foreign brand name to a Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{FF})$ equals to 1 when there is a name change from a foreign brand name to another foreign name, and otherwise 0; $\Delta \text{NAME}(\text{TT}, \text{BC})$ equals to 1 when there is a big name change within the pool of Turkish name changes, and otherwise 0; $\Delta \text{NAME}(\text{FF}, \text{BC})$ equals to 1 when there is a big name change within the pool of foreign name changes, and otherwise 0. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variable, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B			
	Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.4813*** (0.264)	-0.4074*** (0.084)	1.4025*** (0.249)	-0.3727*** (0.080)	1.4553*** (0.263)	-0.4053*** (0.086)	1.3846*** (0.251)	-0.3747*** (0.082)
Equity x Δ Name(TT)	0.6854 (0.658)	0.2184 (0.192)	0.5299 (0.549)	0.1018 (0.113)	3.3119*** (0.966)	-0.3431 (0.297)	1.9239*** (0.533)	0.1702 (0.196)
Equity x Δ Name(TT) x Δ Name(TT, BC)					-3.0036** (1.224)	0.8422** (0.328)	-1.7649** (0.805)	-0.0103 (0.245)
Equity x Δ Name(TF)	2.2000*** (0.510)	-0.3493* (0.209)	2.3936*** (0.506)	-0.4302** (0.194)	2.2792*** (0.503)	-0.4165** (0.207)	2.4647*** (0.517)	-0.4695** (0.191)
Equity x Δ Name(FT)	-1.9746 (1.340)	3.0233*** (0.786)	1.9389* (0.999)	0.5113 (0.445)	-1.9287 (1.354)	3.0188*** (0.785)	2.0937** (1.006)	0.4703 (0.445)
Equity x Δ Name(FF)	1.1619 (1.260)	1.8786*** (0.586)	0.9063 (0.954)	0.8620* (0.453)	1.5651 (1.785)	1.7009 (1.355)	2.0053 (1.292)	0.2752 (0.501)
Equity x Δ Name(FF) x Δ Name(FF, BC)					0.7985 (2.351)	0.8472 (1.713)	-2.2192 (1.397)	1.2227*** (0.459)
Size	0.1201** (0.057)	0.0208 (0.015)	0.1307** (0.053)	0.0197 (0.016)	0.1195** (0.058)	0.0216 (0.015)	0.1326** (0.055)	0.0215 (0.017)
Branches	0.0038 (0.051)	-0.0266 (0.020)	-0.0157 (0.045)	-0.0249 (0.021)	0.0011 (0.052)	-0.0243 (0.020)	-0.0201 (0.047)	-0.0247 (0.021)
Age	-0.0210* (0.011)	-0.0105*** (0.003)	-0.0208* (0.011)	-0.0103*** (0.003)	-0.0214* (0.011)	-0.0098*** (0.003)	-0.0206* (0.011)	-0.0102*** (0.003)
State banks	-0.4199*** (0.148)	0.1998** (0.080)	-0.4285*** (0.153)	0.1933** (0.081)	-0.3679*** (0.125)	0.2009** (0.083)	-0.4022*** (0.143)	0.1983** (0.082)
Foreign banks	-0.0253 (0.084)	0.1158* (0.058)	0.0165 (0.084)	0.0791 (0.055)	-0.0266 (0.089)	0.1166** (0.054)	0.0106 (0.090)	0.0856 (0.054)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306
R ²	0.286	0.262	0.293	0.240	0.290	0.272	0.300	0.246

Table 5:

Impact of general rebranding on depositor discipline – only banks that have ever changed their names.

The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The difference between this Table and Table 3 is that we here only consider those banks that changed their names in the analyses. The Risk-vector represents Equity and Liquidity. The Equity is book value of equity to total assets. The Liquidity ratio is equal to liquid assets to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are: ΔNAME is equal to 1 when a bank changes its name, and 0 otherwise; $\Delta\text{NAME(BC)}$ is a “big” name change and is equal to 1 when there is a completely new name created indicating a radical break away from the past, and 0 otherwise; $\Delta\text{NAME(AT)}$ is equal to 1 when a bank adopts the portion “Türk, Türkiye” to its new name, and 0 otherwise; $\Delta\text{NAME(DT)}$ is equal to 1 when a bank drops “Türk, Türkiye” from the old name when adopting a new name, and 0 otherwise. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variables, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B				Panel C			
	Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.3320*** (0.424)	-0.4337*** (0.095)	1.3802*** (0.416)	-0.4231*** (0.085)	1.3256*** (0.423)	-0.4421*** (0.099)	1.3565*** (0.421)	-0.4178*** (0.089)	1.3209*** (0.431)	-0.4572*** (0.090)	1.3562*** (0.407)	-0.4598*** (0.083)
Equity x Δ Name	1.0883** (0.531)	0.2929 (0.377)	0.4985 (0.518)	0.1750 (0.246)	3.0617** (1.276)	0.6342 (0.760)	2.0591** (0.883)	0.3818 (0.397)	1.2473** (0.491)	0.0011 (0.335)	0.3247 (0.511)	0.0631 (0.203)
Equity x Δ Name x Δ Name(BC)					-2.3748* (1.311)	-0.2306 (0.757)	-2.0165** (0.806)	-0.1526 (0.395)				
Equity x Δ Name x Δ Name(AT)									-0.1032 (2.573)	1.4558 (1.432)	3.0314 (2.557)	-0.1017 (0.431)
Equity x Δ Name x Δ Name(DT)									-0.1831 (1.078)	1.0593** (0.472)	0.8144 (1.363)	0.9383** (0.442)
Size	0.1160 (0.076)	-0.0267 (0.024)	0.1179 (0.073)	-0.0271 (0.027)	0.1138 (0.075)	-0.0180 (0.024)	0.1247* (0.073)	-0.0157 (0.027)	0.1150 (0.078)	-0.0249 (0.024)	0.1188 (0.074)	-0.0241 (0.027)
Branches	0.0987 (0.095)	0.0050 (0.036)	0.0955 (0.088)	0.0050 (0.038)	0.0985 (0.095)	0.0021 (0.035)	0.0805 (0.085)	-0.0040 (0.040)	0.1051 (0.095)	0.0041 (0.035)	0.1019 (0.090)	0.0019 (0.040)
Age	-0.1150*** (0.042)	0.0105 (0.015)	-0.1163** (0.044)	0.0077 (0.016)	-0.1081*** (0.032)	0.0192 (0.014)	-0.1074*** (0.035)	0.0139 (0.014)	-0.1359** (0.058)	0.0117 (0.018)	-0.0828 (0.066)	-0.0438 (0.034)
State banks	-0.7692*** (0.268)	0.1561** (0.069)	-0.7711*** (0.281)	0.1512*** (0.054)	-0.6930*** (0.247)	0.2232* (0.114)	-0.7710** (0.286)	0.1970*** (0.062)	-0.7302*** (0.251)	0.1445** (0.063)	-0.7668** (0.281)	0.1490*** (0.051)
Foreign banks	-0.0015 (0.092)	0.1698** (0.074)	-0.0346 (0.086)	0.1667** (0.077)	0.0146 (0.088)	0.1612** (0.062)	-0.0439 (0.084)	0.1607** (0.065)	0.0036 (0.090)	0.1851** (0.079)	0.0040 (0.086)	0.1712** (0.077)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	568	568	568	568	568	568	568	568	568	568	568	568
R ²	0.289	0.262	0.290	0.261	0.295	0.302	0.303	0.288	0.300	0.282	0.297	0.283

Table 6:

Impact of different typologies of rebranding on depositor discipline – only banks that have ever changed their names.

The dependent variables are DEPG and IDEP. The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The difference between this Table and Table 4 is that we here only consider those banks that changed their names in the analyses. The Risk-vector represents the alternative risk measures Equity and Liquidity. The Equity is book value of equity to total assets. The liquidity ratio (Liquidity) is equal to liquid assets (such as cash, central bank debt and short term government securities) to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are $\Delta \text{NAME}(\text{TT})$, $\Delta \text{NAME}(\text{TF})$, $\Delta \text{NAME}(\text{FT})$, $\Delta \text{NAME}(\text{FF})$, $\Delta \text{NAME}(\text{TT}, \text{BC})$ and $\Delta \text{NAME}(\text{FF}, \text{BIG})$. $\Delta \text{NAME}(\text{TT})$ equals to 1 when there is name change from a local Turkish brand name to another Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{TF})$ equals to 1 when there is name change from a local Turkish brand name to a foreign name, and otherwise 0; $\Delta \text{NAME}(\text{FT})$ equals to 1 when there is name change from a foreign brand name to a Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{FF})$ equals to 1 when there is a name change from a foreign brand name to another foreign name, and otherwise 0; $\Delta \text{NAME}(\text{TT}, \text{BC})$ equals to 1 when there is a big name change within the pool of Turkish name changes, and otherwise 0; $\Delta \text{NAME}(\text{FF}, \text{BC})$ equals to 1 when there is a big name change within the pool of foreign name changes, and otherwise 0. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variable, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B			
	Short term effects of Δ Name		Long term effects of Δ Name		Short term effects of Δ Name		Long term effects of Δ Name	
	DEPG	IDEP	DEPG	IDEP	DEPG	IDEP	DEPG	IDEP
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Equity	1.3369*** (0.405)	-0.4206*** (0.095)	1.2538*** (0.395)	-0.4111*** (0.088)	1.3010*** (0.408)	-0.3982*** (0.102)	1.2209*** (0.395)	-0.3940*** (0.087)
Equity x Δ Name(TT)	0.9137 (0.658)	0.2458 (0.193)	0.6442 (0.531)	0.2196 (0.156)	3.0538** (1.250)	-0.2162 (0.343)	1.8634** (0.696)	0.1549 (0.226)
Equity x Δ Name(TT) x Δ Name(TT, BC)					-2.6730* (1.360)	0.5732 (0.393)	-1.7848** (0.756)	-0.0067 (0.275)
Equity x Δ Name(TF)	1.9755*** (0.381)	-0.4139* (0.224)	2.3085*** (0.364)	-0.4769** (0.222)	2.0343*** (0.388)	-0.4749** (0.228)	2.3920*** (0.397)	-0.5732** (0.219)
Equity x Δ Name(FT)	-1.6836 (1.305)	3.0139*** (0.581)	2.0594** (0.951)	0.7271 (0.664)	-1.5930 (1.315)	3.0071*** (0.595)	2.2538** (0.999)	0.6916 (0.652)
Equity x Δ Name(FF)	1.9244 (1.307)	1.5359*** (0.484)	1.2353 (1.023)	0.8583** (0.397)	2.2321 (1.900)	1.5210 (1.135)	2.4331* (1.330)	0.3256 (0.523)
Equity x Δ Name(FF) x Δ Name(FF, BC)					2.2621 (2.544)	0.1939 (1.710)	-2.5669* (1.288)	0.9750* (0.505)
Size	0.1140 (0.076)	-0.0160 (0.022)	0.1377* (0.076)	-0.0183 (0.026)	0.1160 (0.077)	-0.0137 (0.023)	0.1446* (0.080)	-0.0172 (0.027)
Branches	0.1005 (0.097)	-0.0026 (0.036)	0.0500 (0.086)	-0.0018 (0.040)	0.0993 (0.099)	0.0021 (0.035)	0.0404 (0.093)	0.0026 (0.042)
Age	-0.1099** (0.049)	0.0052 (0.014)	-0.0976* (0.053)	0.0009 (0.014)	-0.0848*** (0.028)	0.0108 (0.011)	-0.0610** (0.028)	0.0042 (0.012)
State banks	-0.7617** (0.281)	0.1767** (0.065)	-0.7687*** (0.269)	0.1613*** (0.051)	-0.6231*** (0.221)	0.1657*** (0.058)	-0.7050*** (0.249)	0.1573*** (0.050)
Foreign banks	0.0660 (0.101)	0.1721** (0.064)	0.0808 (0.098)	0.1290* (0.072)	0.0712 (0.110)	0.1754*** (0.058)	0.0593 (0.113)	0.1415** (0.069)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	568	568	568	568	568	568	568	568
R ²	0.313	0.331	0.330	0.299	0.321	0.347	0.343	0.313

Table 7:

Impact of general rebranding and ownership changes on depositor discipline –full sample.

The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents Equity and Liquidity. The Equity is book value of equity to total assets. The Liquidity ratio is equal to liquid assets to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are: Δ NAME is equal to 1 when a bank changes its name, and 0 otherwise; Δ NAME (BC) is a “big” name change and is equal to 1 when there is a completely new name created indicating a radical break away from the past, and 0 otherwise; Δ NAME (AT) is equal to 1 when a bank adopts the portion “Türk, Türkiye” to its new name, and 0 otherwise; Δ NAME (DT) is equal to 1 when a bank drops “Türk, Türkiye” from the old name when adopting a new name, and 0 otherwise. The ownership change variables is Δ OWN and equals to 1 for major bank ownership changes. A major ownership change occurs when the bank’s current shareholders passes a particular threshold of 50% equity. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variables, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B				Panel C			
	Short term effects of Δ Name and Δ Own		Long term effects of Δ Name and Δ Own		Short term effects of Δ Name and Δ Own		Long term effects of Δ Name and Δ Own		Short term effects of Δ Name and Δ Own		Long term effects of Δ Name and Δ Own	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.5135*** (0.259)	-0.4198*** (0.089)	1.6261*** (0.246)	-0.4310*** (0.088)	1.4979*** (0.260)	-0.4311*** (0.092)	1.5973*** (0.254)	-0.4416*** (0.088)	1.5178*** (0.261)	-0.4349*** (0.090)	1.6233*** (0.246)	-0.4380*** (0.090)
Equity x Δ Name	0.8022 (0.798)	0.1788 (0.361)	1.0716 (0.754)	-0.2016 (0.288)	2.2988* (1.363)	0.7206 (1.037)	2.1298** (0.860)	0.1390 (0.375)	0.9731 (0.880)	-0.1637 (0.388)	0.9050 (0.786)	-0.3384 (0.225)
Equity x Δ Name x Δ Name(BC)					-1.8576 (1.519)	-0.3898 (1.030)	-1.4176 (0.929)	-0.2883 (0.409)				
Equity x Δ Name x Δ Name(AT)									-0.5011 (2.877)	1.3191 (1.402)	2.9650 (2.960)	-0.3018 (0.517)
Equity x Δ Name x Δ Name(DT)									-0.0591 (1.337)	1.2109** (0.543)	0.6814 (1.427)	1.1469** (0.435)
Equity x Δ Own	-0.0985 (0.970)	0.2546 (0.208)	-0.9545 (0.589)	0.4087*** (0.135)	0.0211 (1.039)	0.1424 (0.222)	-0.9078 (0.593)	0.3726*** (0.117)	-0.1294 (0.993)	0.2741 (0.214)	-0.9760* (0.579)	0.3633*** (0.120)
Size	0.1223** (0.054)	0.0139 (0.016)	0.1134** (0.055)	0.0112 (0.016)	0.1208** (0.055)	0.0182 (0.016)	0.1154** (0.053)	0.0171 (0.017)	0.1221** (0.055)	0.0148 (0.016)	0.1146** (0.056)	0.0131 (0.016)
Branches	0.0044 (0.048)	-0.0233 (0.021)	0.0046 (0.052)	-0.0151 (0.020)	0.0045 (0.048)	-0.0256 (0.020)	0.0003 (0.048)	-0.0193 (0.021)	0.0068 (0.048)	-0.0243 (0.021)	0.0077 (0.053)	-0.0181 (0.021)
Age	-0.0217* (0.011)	-0.0098*** (0.003)	-0.0226** (0.011)	-0.0094*** (0.003)	-0.0216* (0.011)	-0.0092*** (0.003)	-0.0227** (0.011)	-0.0093*** (0.003)	-0.0218** (0.011)	-0.0097*** (0.003)	-0.0226** (0.011)	-0.0096*** (0.003)
State banks	-0.4062*** (0.148)	0.2000** (0.087)	-0.4161*** (0.152)	0.1915** (0.084)	-0.3893*** (0.135)	0.2253*** (0.084)	-0.4356*** (0.155)	0.2095** (0.082)	-0.3905*** (0.138)	0.1994** (0.088)	-0.4128*** (0.151)	0.1949** (0.085)
Foreign banks	-0.0560 (0.094)	0.1203* (0.063)	-0.0679 (0.090)	0.1156* (0.063)	-0.0498 (0.089)	0.1075** (0.053)	-0.0749 (0.085)	0.1071* (0.055)	-0.0437 (0.087)	0.1359** (0.068)	-0.0378 (0.088)	0.1278** (0.063)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306
R ²	0.271	0.211	0.270	0.212	0.273	0.240	0.276	0.228	0.278	0.224	0.275	0.229

Table 8:

Impact of different typologies of rebranding and ownership changes on depositor discipline – full sample.

The DEPG is calculated as the first difference of the log of real deposits. The IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents Equity and Liquidity. The Equity is book value of equity to total assets. The Liquidity ratio is equal to liquid assets to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. The rebranding variables are: $\Delta \text{NAME}(\text{TT})$ equals to 1 when there is name change from a local Turkish brand name to another Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{TF})$ equals to 1 when there is name change from a local Turkish brand name to a foreign name, and otherwise 0; $\Delta \text{NAME}(\text{FT})$ equals to 1 when there is name change from a foreign brand name to a Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{FF})$ equals to 1 when there is a name change from a foreign brand name to another foreign name and otherwise 0; $\Delta \text{NAME}(\text{TT}, \text{BC})$ equals to 1 when there is a big name change within the pool of Turkish name changes, and otherwise 0; $\Delta \text{NAME}(\text{FF}, \text{BC})$ equals to 1 when there is a big name change within the pool of foreign name changes, and otherwise 0. The ownership change variables are: ΔOWN equals 1 for major bank ownership changes. A major ownership change occurs when the bank's current shareholders passes a particular threshold of 50% equity. $\Delta \text{OWN}(\text{TT})$ equals 1 when Turkish owners sell the bank to another Turkish owners, and 0 otherwise. $\Delta \text{OWN}(\text{TF})$ equals 1 when Turkish owners sell the bank to foreign owners, and 0 otherwise. $\Delta \text{OWN}(\text{FT})$ equals 1 when foreign owners sell the bank to Turkish owners, and 0 otherwise. $\Delta \text{OWN}(\text{FF})$ equals 1 when foreign owners sell the bank to another foreign owners, and 0 otherwise. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variables, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A				Panel B			
	Short term effects of Δ Name and Δ Own		Long term effects of Δ Name and Δ Own		Short term effects of Δ Name and Δ Own		Long term effects of Δ Name and Δ Own	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.4936*** (0.259)	-0.4146*** (0.090)	1.5550*** (0.245)	-0.4131*** (0.086)	1.4519*** (0.257)	-0.4087*** (0.091)	1.5338*** (0.246)	-0.4173*** (0.088)
Equity x Δ Name(TT)	0.6678 (0.896)	0.1350 (0.210)	1.4709** (0.568)	-0.1355 (0.143)	3.5268*** (1.007)	-0.3770 (0.324)	1.9253*** (0.537)	0.1749 (0.204)
Equity x Δ Name(TT) x Δ Name(TT, BC)					-3.4419** (1.310)	0.8000** (0.346)	-0.8740 (0.982)	-0.2388 (0.277)
Equity x Δ Name(TF)	8.8804*** (2.221)	-3.5388** (1.471)	8.2943*** (2.224)	-4.2935* (2.310)	9.0869*** (2.115)	-3.5646** (1.574)	9.1758*** (2.533)	-4.5646* (2.446)
Equity x Δ Name(FT)	-1.1056 (2.029)	2.3548*** (0.537)	2.8294** (1.371)	0.1063 (0.518)	-1.2820 (2.049)	2.4602*** (0.525)	2.8664** (1.267)	0.0925 (0.500)
Equity x Δ Name(FF)	1.5547 (1.178)	1.9606** (0.899)	2.5396** (1.172)	0.3462 (0.646)	1.8267 (1.573)	1.6160 (1.455)	4.2709** (1.815)	-0.5990 (0.719)
Equity x Δ Name(FF) x Δ Name(FF, BC)					1.3446 (2.237)	0.8075 (1.491)	-3.2152 (1.993)	1.7565** (0.683)
Equity x Δ Own(TT)	-0.8907 (0.926)	0.2060 (0.176)	-1.2688** (0.503)	0.2989*** (0.108)	-0.7903 (0.987)	0.1950 (0.188)	-1.1771** (0.574)	0.3020*** (0.104)
Equity x Δ Own(TF)	-7.5229*** (2.321)	3.1422** (1.538)	-6.3475*** (2.167)	3.9261* (2.335)	-7.6713*** (2.209)	3.1643** (1.580)	-7.2215*** (2.439)	4.2107* (2.464)
Equity x Δ Own(FT)	0.1132 (1.983)	0.7147 (0.748)	-2.1067*** (0.678)	0.7074 (0.454)	0.3840 (2.012)	0.5522 (0.767)	-1.1898 (0.868)	0.3319 (0.351)
Equity x Δ Own(FF)	-0.8237 (1.280)	-0.4088 (0.882)	-1.2032 (1.215)	0.4302 (0.479)	-0.2310 (1.523)	-0.6413 (1.071)	-1.0873 (1.545)	0.5026 (0.650)
Size	0.1261** (0.052)	0.0202 (0.015)	0.1269** (0.052)	0.0206 (0.016)	0.1255** (0.053)	0.0209 (0.015)	0.1272** (0.055)	0.0230 (0.016)
Branches	-0.0120 (0.050)	-0.0258 (0.021)	-0.0422 (0.047)	-0.0206 (0.022)	-0.0146 (0.052)	-0.0233 (0.020)	-0.0428 (0.049)	-0.0211 (0.022)
Age	-0.0213* (0.011)	-0.0105*** (0.003)	-0.0228* (0.012)	-0.0097*** (0.003)	-0.0218* (0.011)	-0.0098*** (0.003)	-0.0223* (0.012)	-0.0097*** (0.003)
State banks	-0.4437*** (0.158)	0.2113** (0.086)	-0.4450*** (0.158)	0.1994** (0.084)	-0.3866*** (0.129)	0.2148** (0.089)	-0.4271*** (0.151)	0.2099** (0.085)
Foreign banks	-0.0467 (0.091)	0.1124 (0.070)	-0.0574 (0.127)	0.0897 (0.070)	-0.0459 (0.097)	0.1145* (0.066)	-0.0313 (0.136)	0.0866 (0.070)
Bank-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,306
R ²	0.315	0.271	0.317	0.252	0.319	0.280	0.325	0.260

Table 9:

Testing for depositor discipline via Heckman two-stage treatment effects.

Panel A presents the 1st step of Heckman 2-step treatment model. The dependent variables are : $\Delta \text{NAME}(\text{TT})$ equals to 1 when there is name change from a local Turkish brand name to another Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{TF})$ equals to 1 when there is name change from a local Turkish brand name to a foreign name, and otherwise 0; $\Delta \text{NAME}(\text{FT})$ equals to 1 when there is name change from a foreign brand name to a Turkish name, and otherwise 0; $\Delta \text{NAME}(\text{FF})$ equals to 1 when there is a name change from a foreign brand name to another foreign name and otherwise 0. Explanatory variables are all lagged with one year: the z-score, a measure of bank stability, is defined by $z = \text{Mean}(\text{EQ}/\text{TA} + \text{ROA})/\text{St.Dev.}(\text{ROA})$, i.e., average capitalization (Equity/Total Assets) and return on assets (ROA) during the four preceding years over the 4-year standard deviation of the return on assets; MMC is a bank-specific measure of multimarket contact by considering the number of interprovincial weighted contacts between banks; Liquidity, is defined as the ratio of liquid assets to total deposits; $\Delta \text{OWN}(\text{TT})$ equals 1 when Turkish owners sell the bank to another Turkish owners, and 0 otherwise; $\Delta \text{OWN}(\text{TF})$ equals 1 when Turkish owners sell the bank to foreign owners, and 0 otherwise; $\Delta \text{OWN}(\text{FT})$ equals 1 when foreign owners sell the bank to Turkish owners, and 0 otherwise.; $\Delta \text{OWN}(\text{FF})$ equals 1 when foreign owners sell the bank to another foreign owners, and 0 otherwise; the Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices, the Branches variable is the natural logarithm of the number of bank branches, the Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Panel B is the 2nd step of Heckman 2-step treatment model. Dependent variables: the DEPG is calculated as the first difference of the log of real deposits; the IDEP is the implicit interest rate on deposits, calculated as the annual interest expenses divided by total bank deposits. The Risk-vector represents Equity and Liquidity. The Equity is book value of equity to total assets. The Liquidity ratio is equal to liquid assets to total deposits. The Risk-vector is included with a one year lag to account for the fact that balance sheet and income statement information is available to the public with a certain delay. To moderate the inordinate influence of extreme values, we winsorize abovementioned dependent and bank risk variables at the 2% level in both tails. Rebranding variables not explained in the description of Panel A: $\Delta \text{NAME}(\text{TT}, \text{BC})$ equals to 1 when there is a big name change within the pool of Turkish name changes, and otherwise 0; $\text{NAME}(\text{FF}, \text{BC})$ equals to 1 when there is a big name change within the pool of foreign name changes, and otherwise 0. For an explanation of ownership change variables we refer to the description of Panel A. Although the variable Liquidity as well as its interactions with rebranding variables are included in all specifications, in order to facilitate the interpretation of results, their coefficient estimates are not reported as only the Equity variable proved to be unambiguously leading to depositor discipline in Table 2. The Size variable is the natural logarithm of total assets of a bank expressed in terms of 1987 prices. The Branches variable is the natural logarithm of the number of bank branches. The Age indicates the number of years the bank exists. State banks are predominantly owned by the government. Private banks are domestically owned commercial banks with more than 50% of shares owned by Turkish residents. Foreign banks are either branches of international operating banks or when 50% of their shares are owned by non-residents. Private domestic banks serve as the reference group. Year dummy variables are included in all specifications but their coefficient estimates are not reported. $\lambda_{\text{NAME}(\text{TT})}$ is the inverse of the Mill's ratio for being rebranding from a local Turkish brand name to a another Turkish name; $\lambda_{\text{NAME}(\text{TF})}$ is the inverse of the Mill's ratio for being rebranding from a local Turkish brand name to a foreign name; $\lambda_{\text{NAME}(\text{FT})}$ is the inverse of the Mill's ratio for being rebranding from a foreign name a Turkish name; $\lambda_{\text{NAME}(\text{FF})}$ is the inverse of the Mill's ratio for being rebranding from a foreign brand name to a another foreign name. For both the deposits equation as well as the interest rate equation, we estimate two versions of the rebranding variables, while keeping other variables unchanged, to discriminate between the short term (Spec. 1 and 2) and long term impact (Spec. 3 and 4) of rebranding on depositor discipline. We explore the short-run effect using a dummy variable set equal to 1 in the first three years after the bank is rebranded. The long-run impact of rebranding is verified using a dummy variable set, equaling to 1 for the first six years after the rebranding, and 0 otherwise. Standard errors (in parentheses) are corrected for clustering at bank level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: 1st step of Heckman 2-step treatment model								
	ΔName(TT)		ΔName(TF)		ΔName(FT)		ΔName(FF)	
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
z-score	0.0012 (0.002)	0.0014 (0.002)	-0.0010 (0.008)	0.0011 (0.002)	-0.0595** (0.028)	-0.0232 (0.017)	0.0013 (0.009)	-0.0041 (0.010)
MMC	-0.1563* (0.089)	-0.1496** (0.071)	-0.2091* (0.115)	-0.1396 (0.117)	-0.2287 (0.205)	-0.1964* (0.113)	-1.1512*** (0.443)	-0.3325 (0.237)
Liquidity	0.0268 (0.041)	0.0425 (0.044)	0.0185 (0.100)	0.0618 (0.074)	-0.6196** (0.244)	-0.6274*** (0.232)	-0.0672* (0.039)	0.0380 (0.029)
ΔOwn(TT)	1.4840*** (0.342)	1.5220*** (0.299)						
ΔOwn(TF)			4.2091*** (0.863)	4.9137*** (1.082)				
ΔOwn(FT)					1.5009*** (0.382)	1.4274*** (0.378)		
ΔOwn(FF)							1.3302*** (0.399)	1.3623*** (0.343)
Size	-0.0431 (0.086)	-0.0545 (0.083)	-0.0462 (0.226)	-0.0883 (0.237)	-0.0418 (0.129)	-0.0865 (0.155)	0.3538** (0.165)	0.4330** (0.172)
Branches	-0.0568 (0.210)	0.1793 (0.197)	0.4855 (0.387)	0.3020 (0.361)	0.0652 (0.303)	0.3824 (0.260)	0.3472 (0.357)	-0.0772 (0.300)
Age	0.0248** (0.010)	0.0261*** (0.010)	-0.0028 (0.012)	0.0047 (0.013)	-0.0320* (0.018)	-0.0329* (0.018)	-0.0182 (0.012)	-0.0139 (0.012)
Bank-random effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.236	0.181	0.416	0.401	0.333	0.289	0.226	0.233

Panel B: 2nd step of Heckman 2-step treatment model								
	Short term effects of ΔName and ΔOwn		Long term effects of ΔName and ΔOwn		Short term effects of ΔName and ΔOwn		Long term effects of ΔName and ΔOwn	
	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)	DEPG (1)	IDEP (2)	DEPG (3)	IDEP (4)
Equity	1.0010*** (0.220)	-0.4187*** (0.117)	1.1178*** (0.266)	-0.4112** (0.173)	0.9548*** (0.217)	-0.4031*** (0.129)	1.0687*** (0.269)	-0.4017** (0.175)
Equity x ΔName(TT)	0.8452 (0.999)	0.0959 (0.223)	1.3031** (0.613)	-0.0513 (0.121)	5.4852*** (0.729)	-0.6149* (0.361)	3.0899*** (0.634)	0.0297 (0.237)
Equity x ΔName(TT) x ΔName(TT, BC)					-6.0390*** (0.906)	0.9353** (0.370)	-2.9383*** (0.832)	-0.0786 (0.263)
Equity x ΔName(TF)	11.6555*** (1.754)	-3.1019** (1.298)	9.7482*** (1.589)	-4.0690** (1.828)	12.1722*** (1.924)	-3.2858** (1.540)	10.4828*** (1.823)	-4.3026** (1.972)
Equity x ΔName(FT)	-1.2624 (1.854)	1.8744*** (0.489)	1.9699 (1.362)	0.0515 (0.401)	-1.5873 (1.886)	2.0026*** (0.462)	1.6773 (1.269)	0.1754 (0.355)
Equity x ΔName(FF)	-0.1840 (1.007)	2.0757** (0.847)	1.1152 (0.883)	0.2763 (0.554)	0.8126 (1.182)	1.2742 (1.168)	1.9122 (1.367)	-0.5063 (0.604)
Equity x ΔName(FF) x ΔName(FF, BC)					0.7962 (1.928)	0.2374 (1.226)	-1.5449 (1.550)	1.5049*** (0.572)
Equity x ΔOwn(TT)	-0.8339 (0.864)	0.2513 (0.164)	-1.0976** (0.446)	0.2962** (0.148)	-0.6284 (0.952)	0.2234 (0.184)	-0.9226* (0.543)	0.2822* (0.154)
Equity x ΔOwn(TF)	-14.4087*** (2.357)	4.3137** (1.997)	-6.3002*** (1.295)	4.2035** (1.881)	-15.0797*** (2.605)	4.7108** (2.223)	-7.1331*** (1.566)	4.4746** (2.021)
Equity x ΔOwn(FT)	0.6886 (1.905)	1.0537** (0.472)	-1.0540* (0.594)	0.4458 (0.340)	1.0146 (1.942)	0.8913** (0.425)	-0.3425 (0.738)	0.1372 (0.264)
Equity x ΔOwn(FF)	-0.4020 (1.621)	-0.1380 (0.498)	-0.3235 (0.989)	0.5252 (0.407)	0.8982 (1.287)	-0.8478 (0.612)	0.6746 (1.152)	0.2898 (0.398)
Size	-0.2600*** (0.039)	0.1689*** (0.029)	0.1000*** (0.020)	-0.0067 (0.015)	-0.2664*** (0.038)	0.1703*** (0.030)	0.1006*** (0.020)	-0.0072 (0.015)
Branches	0.7228** (0.287)	-0.1084 (0.169)	-0.0651*** (0.022)	-0.0031 (0.018)	0.7392** (0.287)	-0.1347 (0.172)	-0.0610*** (0.022)	-0.0026 (0.018)
Age	0.0431** (0.021)	-0.0376*** (0.013)	0.0085*** (0.002)	-0.0048*** (0.001)	0.0433** (0.021)	-0.0364*** (0.013)	0.0084*** (0.002)	-0.0048*** (0.001)
State banks	-0.0886* (0.048)	0.0918 (0.059)	-0.1339** (0.060)	0.1036** (0.050)	-0.0729* (0.043)	0.0874 (0.055)	-0.1245** (0.057)	0.1046** (0.050)
Foreign banks	-0.0296 (0.040)	0.0465 (0.042)	-0.0968** (0.047)	0.0272 (0.045)	-0.0280 (0.039)	0.0342 (0.042)	-0.0860* (0.046)	0.0265 (0.045)
λ _{Name(TT)}	1.6431* (0.853)	-1.4369*** (0.510)	0.1439*** (0.050)	-0.0727** (0.032)	1.6528* (0.850)	-1.3930*** (0.508)	0.1404*** (0.050)	-0.0734** (0.031)
λ _{Name(TF)}	2.2893*** (0.518)	-0.5952* (0.311)	0.0002*** (0.000)	-0.0001*** (0.000)	2.3376*** (0.518)	-0.6462** (0.316)	0.0002** (0.000)	-0.0001** (0.000)
λ _{Name(FT)}	-0.0193 (0.028)	-0.0047 (0.015)	-0.1338*** (0.022)	0.0647*** (0.014)	-0.0194 (0.028)	-0.0031 (0.015)	-0.1367*** (0.022)	0.0654*** (0.014)
λ _{Name(FF)}	-0.6307*** (0.050)	0.3021*** (0.046)	0.0000*** (0.000)	-0.0000*** (0.000)	-0.6398*** (0.050)	0.3050*** (0.046)	0.0000*** (0.000)	-0.0000*** (0.000)
Bank-random effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,260	1,260	1,263	1,263	1,260	1,260	1,263	1,263
R ²	0.462	0.477	0.406	0.411	0.474	0.490	0.416	0.421