



Bank affiliation and discounts on closed-end funds

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ABSTRACT

This study investigates whether investors value the bank affiliation of closed-end funds and analyzes whether investors treat funds differently because of their affiliated bank type, commercial or investment, and the size of their affiliated commercial bank, small or big. The analysis of the discounts on closed-end funds traded on Borsa Istanbul reveals that bank-affiliated funds trade at a lower discount than other funds, controlling for fund characteristics and market conditions. It is found that investors are willing to pay a higher price on funds affiliated with commercial banks, especially big ones, than bank-unaffiliated funds. However, discounts on all bank-affiliated funds increased more than discounts on unaffiliated funds during the banking crisis of 2000–2001 in Turkey suggesting that investors are willing to pay a trust premium to invest in funds that are affiliated with banks regardless of their type or size.

1. Introduction

The literature provides conflicting evidence regarding the effect of having an affiliation with financial conglomerates¹ on the performance of funds. Financial conglomerates acquire more information about their clients by engaging in different activities and can share this information with their subsidiaries. They also create economies of scale and provide diversification benefits to their affiliated funds. On the one hand, due to this information sharing, all the firms in a conglomerate make better investment decisions and improve their performances (Bhattacharya, Lee, & Pool, 2013; Massa & Rehman, 2008). On the other hand, diversification of activities can increase conflict of interest in providing several financial services among their subsidiaries. Some of the firms in the conglomerate may need to sacrifice their performances to enhance the conglomerate's overall performance (Albareto, Cardillo, Hamaui, & Marinelli, 2020; Allen, Jagtiani, Peristiani, & Saunders, 2004; Berzins, Liu, & Trzcinka, 2013; Ferreira, Matos, & Pires, 2018; Golez & Marin, 2015; Hao & Yan, 2012; Heyden & Röder, 2020; Mehran & Stulz, 2007; Zheng & Yan, 2021). However, none of these studies investigates how the investors value this affiliation. This paper tries to fill this gap in the literature by examining whether closed-end funds (CEFs) affiliated with a financial conglomerate (a bank) sell at a premium in an emerging

market, Turkey, and whether this premium changes with the type of financial services provided by the conglomerate (a commercial bank or an investment bank), the size of the affiliated commercial bank and a local banking crisis. If having an affiliation with a financial conglomerate provides some benefits such as superior information, better diversification, or higher trust, then investors are expected to pay a premium for these affiliated funds.

Theoretically, Puri (1999) analyzes the implications of commercial banks providing investment banking services. Her model verifies both the information sharing and the conflict of interest arguments. She shows that commercial banks, having superior information about firms through their lending activities, are better certifiers of new securities issued by these firms. However, she finds that commercial banks' equity holding in the firms issuing securities can hinder a bank's certification ability. Gande, Puri, Saunders, and Walter (1997) document the certification effect by analyzing commercial and investment bank underwritten debt securities. Similarly, Allen et al. (2004) provide evidence of better certification by commercial banks as merger advisors for target firms but evidence of conflict of interest for acquirers.

A related line of research analyzed the interaction between affiliated firms in a financial group. Massa and Rehman (2008) investigate the flow of information between commercial banks and mutual funds

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¹ Financial conglomerates are defined as banks that engage in several activities, including making loans, securities underwriting, insurance services, brokerage, and mutual fund services, similar to Laeven and Levine (2007). In this paper, banks and financial conglomerates are used interchangeably.

belonging to the same financial group. They show that affiliated funds increase (decrease) their holdings in borrowing firms with superior (inferior) performance in the future, supporting the information sharing argument. Conversely, [Hao and Yan \(2012\)](#) document that investment bank-affiliated funds significantly underperform unaffiliated funds, a finding consistent with the conflict of interest argument. Their results are in line with investment banks using affiliated funds to support their underwriting business at the expense of the fund's shareholders. Similarly, [Albaretto et al. \(2020\)](#) and [Ferreira et al. \(2018\)](#) report an underperformance by commercial bank-affiliated mutual funds compared to independent ones. Furthermore, underperformance by affiliated hedge funds ([Franzoni & Giannetti, 2019](#); [Zheng & Yan, 2021](#)) and private equity firms ([Fang, Ivashina, & Lerner, 2013](#)) are also reported in the literature. All of these studies analyze how being affiliated with a financial group affects the investment decisions of affiliated funds. However, investors' perceptions of this affiliation and its effect on the valuation of affiliated firms have not been investigated.

By investigating how being affiliated with a commercial or investment bank affects the discount on CEFs in the market, this paper helps us understand how investors perceive a fund's affiliation with a commercial or an investment bank. Discount on CEFs is a well-documented phenomenon for the US and other markets worldwide (for example, see [Chan, Jain, & Xia, 2008](#); [Güner & Önder, 2009](#); [Hardouvelis & Tsiritakis, 1996](#); [Lee, Shleifer, & Thaler, 1991](#)). It is conjectured in this paper that if investors perceive bank affiliation as a beneficial (harmful) attribute, then the discounts on bank-affiliated funds should be lower (higher) than that on unaffiliated funds after controlling for other factors that are shown to affect the CEF discounts. The bank affiliation may affect the funds' discounts not only because of better performance of affiliated funds due to their information advantages but also small investors' higher trust in and more familiarity with banks, and stricter regulation of commercial banks compared to other financial institutions. Among these reasons, only the trust in affiliated banks will be affected by a local banking crisis.

The 2008/2009 Global Financial Crisis has renewed the academic interest in the trust in financial institutions and the effect of the financial crisis on this trust (for example, see [Afandi & Habibov, 2017](#); [Knell & Stix, 2015](#); [Sapienza & Zingales, 2012](#)). Most of these studies try to quantify the differences in trust in financial institutions qualitatively via questionnaires. A quantitative measure of trust does not exist in the literature. Furthermore, literature on the effect of trust on the valuation of firms is quite scarce and mostly limited to theoretical papers ([Gennaioli, Shleifer, & Vishny, 2015](#)). By investigating the discounts on bank-affiliated and unaffiliated CEFs during the banking crisis, we try to fill this gap.

Trust is an important factor that affects the investment decisions of individuals, as documented in several studies² and can reduce the undesired effects of uncertainty ([Bülbul, 2013](#)). Theoretically, [Gennaioli et al. \(2015\)](#) show that investors are willing to pay a trust premium to professional money managers. Banks are documented to be the most trusted financial institutions.³ Furthermore, trust in banks is found to decrease significantly with banking crises experienced in a country

² According to the 2013 CFA Institute/Edelman survey, trust is considered the most important attribute in choosing an investment manager by 75% of investors ([Kostovetsky, 2016](#)). By documenting negative flows to mutual funds around the announcement of changes in the ownership of fund management companies, [Kostovetsky \(2016\)](#) emphasizes the importance of trust in delegated asset management, like CEFs.

³ According to the results of a survey conducted in the US about trust in several institutions, it is found that people trust the most to the banks, followed by bankers and least to brokers and stock market (([Guiso, 2010](#); [Sapienza & Zingales, 2012](#)). Moreover, commercial banks are trusted more than other financial institutions by investors not only in the US but also in other countries ([Guiso, 2010](#); [Knell & Stix, 2015](#); [Sapienza & Zingales, 2012](#)).

([Fungáčová, Hasan, & Weill, 2019](#)).⁴ It is argued in this paper that bank affiliation can be a significant determinant of discounts on CEFs because of the trust in affiliated banks. Commercial and investment bank-affiliated funds are expected to have both endowed and earned trust,⁵ whereas unaffiliated funds only have earned trust. The banking crisis is expected to reduce the trust in financial institutions in general and commercial banks in particular. Since both the endowed – trust transferred from their affiliated parents - and the earned trust of bank-affiliated funds, as opposed to only the earned trust of unaffiliated funds, are anticipated to decline during the crisis period, discounts on bank-affiliated funds are expected to be affected more adversely from the local banking crisis.

Turkey has several characteristics that provide a unique opportunity to investigate the effect of bank affiliation on the valuation of or discounts on CEFs. In Turkey, commercial and investment banks are allowed to have subsidiaries providing different financial services; hence, they can be considered as financial conglomerates. It is quite common for a commercial bank to have an investment bank, an insurance company, a real estate investment trust (REIT), a closed-end fund (CEF), or a hedge fund, as its affiliated subsidiaries. To capitalize on the affiliated commercial bank's reputation and highlight the association of the subsidiary with it, in general, the subsidiaries keep the name of their parent bank.⁶ Moreover, Turkey experienced a longevous financial crisis between January 2000 and September 2001, which was considered to be the result of a fragile banking sector and other factors that brought out this fragility ([Özatay & Sak, 2002](#)). Around and during the local banking crisis period, 21 commercial banks, which corresponded to one-third of the commercial banks operating in the country, failed.⁷

It is reasonable to argue that the Turkish local banking crisis, which had a significant adverse effect on commercial banks, has changed the perceived quality/reputation of banks in the eyes of investors/public and reduced the trust that the investors had in commercial banks, as shown in other countries. Therefore, this crisis provides a unique opportunity to analyze whether the loss of confidence (endowed trust) in commercial banks spills over to the commercial bank-affiliated CEFs and identify the cost associated with loss of trust. In this paper, the cost associated with this loss of trust is defined as a higher discount or a lower premium on bank-affiliated CEFs relative to unaffiliated ones. The difference between the discounts on the bank- and nonbank-affiliated CEFs

⁴ [Fungáčová et al. \(2019\)](#) provide evidence by analyzing a sample of 52 countries. There are also some studies providing evidence for a specific country (see [Guiso \(2010\)](#) for the US and Europe; [Stevenson and Wolfers \(2011\)](#) for the US; [Sapienza and Zingales \(2012\)](#) for the US; [Carbó-Valverde, Maqui-López, and Rodríguez-Fernández \(2013\)](#) for Spain; [Jansen et al. \(2015\)](#) for the Netherlands; [Knell and Stix \(2015\)](#) for Austria). The majority of the empirical evidence for the loss of trust in banks during crises is from the Great Recession. [Chernykh, Davydov, and Sihvonen \(2019\)](#) show that public confidence in banks is affected by the industry-level financial instability measures, such as the number of banks that failed, the number of retail depositors in failed banks, and accumulated bad debt but not from the risk characteristics of individual banks.

⁵ [Amiraslani, Lins, Servaes, and Tamayo \(2021\)](#) classify trust in an organization into two as 'endowed' and 'earned' trust. Borrowing from [Amiraslani et al. \(2021\)](#), the endowed trust of the bank-affiliated CEF is defined as the trust inherited from an affiliated bank. In contrast, the earned trust is defined as the trust a CEF generated through its discretionary investment decisions.

⁶ For example, Is Investment, Is CEF, Is REIT, Is Leasing, and Is Private Equity are affiliated subsidiaries of Is Bank, and all have the name of the affiliated commercial bank, Is, as part of their title. Hence, it is straightforward to identify the affiliation of a CEF with a bank.

⁷ There were 62 commercial banks operating in Turkey in December 1999. As explained in [Section 2.3](#), it was a long-duration crisis. There was a currency crash and the real GDP growth rate was -3.37% in 1999. Turkey started to implement an IMF supported program at the beginning of 2000 and increased the GDP growth rate to 6.77% in that year. However, the rising current account deficit, real appreciation of the Turkish lira, and fragility of both public and private banks caused a severe financial crisis in 2001 ([Alper & Öniş, 2004](#)).

is expected to get smaller during the local banking crisis. Hence, it would be possible to analyze how a potential change in trust in banks affects the behavior of discounts on their affiliated CEFs after controlling for fund characteristics and market conditions.

This paper makes three contributions to the literature by analyzing the discounts on bank-affiliated and unaffiliated CEFs in an emerging market that experienced a banking crisis. First, it examines the effect of bank affiliation as an indicator of trust on the size of the discount on their affiliated CEFs relative to unaffiliated ones. Second, it investigates whether investors value affiliation with commercial and investment banks, and affiliation with large and small commercial banks differently. Third, by examining the discount on bank-affiliated and unaffiliated funds during the local banking crisis, it suggests that the discount on affiliated companies can be used as an indicator of trust as modeled in [Gennaioli et al. \(2015\)](#).

Empirical analyses of discounts on Turkish CEFs from 1995 to 2007 indicate that investors value bank affiliation and pay a premium to buy the shares of bank-affiliated CEFs after controlling for other characteristics of CEFs. Factors that are shown to affect discounts in developed markets also explain the discounts on CEFs in this emerging market. The discounts are found to be significantly lower for bank-affiliated funds, indicating the existence of a trust premium, mainly due to the endowed trust. These findings indicate that although the local banking crisis does not affect the discounts of nonbank-affiliated CEFs, the decline of trust in commercial banks during the local banking crisis results in higher discounts for all bank-affiliated but especially small commercial bank-affiliated CEFs.

The remaining sections of this paper are organized as follows. The characteristics of the Borsa Istanbul (BIST), the Turkish CEFs listed on the BIST, and the financial crisis experienced in Turkey during the sample period are explained in the following section. [Section 3](#) presents the data and the methodology used in the analyses. The empirical findings are discussed in the fourth section. The last section summarizes the findings and concludes the paper.

2. Background

2.1. Characteristics of the Borsa Istanbul

The BIST started operating in 1986.⁸ Its development since 1988 can be observed in [Table 1](#). Commercial banks have played a significant role in the evolution of the stock market in Turkey. For example, they were allowed to act as underwriters in the primary market in the early years of the BIST. However, in 1996, they were required to establish an independent subsidiary or purchase a financial intermediary to perform investment banking activities.⁹ In addition to commercial banks with investment banking subsidiaries, there are other financial intermediaries owned by individuals or brokers that provide investment banking services in the BIST.

2.2. The characteristics of Turkish CEFs

The first Turkish equity CEF, Vakıf Fund - a commercial bank-affiliated one, was started trading in 1991. To establish a CEF, a

⁸ It was ranked as the 26th in terms of total market capitalization in US dollars among 51 stock exchanges that were members of the World Federation of Exchanges in December 2007 (the end of our sample period). Source: <http://www.world-exchanges.org/statistics/monthly-reports>.

⁹ The act enacted in 1996 is similar to the Glass-Steagall Act in the US. It aims to separate investment banking activities of deposit collecting commercial banks in Turkey.

corporation must obtain a permit from the Capital Market Board (CMB) of Turkey.¹⁰ Equity CEFs are allowed to invest in stocks, Treasury bills and bonds, foreign currencies, and valuable commodities, such as gold. The funds in the sample mainly hold stocks, Treasury bills, and repurchase agreements during the sample period. They are required to report their portfolio holdings in broad asset categories to the BIST every Friday since July 1995. Moreover, on the last Friday of every month, CEFs must report individual securities in their portfolios.

Commercial banks, investment banks, brokerage houses, and individuals can form CEFs. Like other securities traded on the BIST, these funds are regulated by the CMB. The only requirement for individuals to form a CEF is not being bankrupt, declared to be bankrupt, or not prohibited from transacting in the stock exchange. According to [Kayali \(2019\)](#), the CMB imposes monetary administrative fines if the institutions or individuals violate the regulations, do not act as prudent and honest merchants or in accordance with market practices.

Several restrictions on the portfolio holdings of equity CEFs are imposed by the CMB of Turkey during our sample period. First, at any point in time, equity CEFs must invest at least 25% of their portfolios in stocks trading on the BIST to be exempt from capital gain taxes. Second, they are not allowed to hold >9% of the shares of any company to make sure that they stay as minority shareholders. Third, they are not allowed to invest >10% of their NAV in the securities of a single company to assure diversification of their portfolios. Finally, they are not allowed to invest in domestic or foreign closed-end or open-end funds.

There is no requirement of dividend payment for Turkish equity CEFs, and thus, they usually do not pay any dividends. For example, four CEFs have not paid any dividends since their establishment until the end of the sample period of this paper. Furthermore, only three of the existing twenty-two Turkish CEFs paid dividends in 2002, and only six out of 31 distributed any cash dividend in 2007.

The thirty-one equity CEFs traded on the BIST during our sample period are analyzed in this paper ([Table 2](#)). Twelve of these 31 equity CEFs are affiliated with commercial banks, and six more are affiliated with investment banks.

2.3. The 2000/2001 financial crisis in Turkey

Turkey experienced a banking crisis that started in November 2000 ([Arpac & Bird, 2009](#)). The banking industry had been very fragile before the crisis because of deregulation of the industry without adequate supervision since 1980s. The Banking Regulatory and Supervisory Agency (BRSA) was established on August 31, 2000, to solve the problems in the banking sector. In February 2001, Turkey experienced another crisis caused by currency problems ([Laeven & Valencia, 2018](#)). In the aftermath of the twin crises, 21 commercial banks have failed. Only one of these failed commercial banks had an affiliated CEF.¹¹

3. Hypotheses, empirical models, variable definitions and data sources

3.1. Hypotheses

Three main hypotheses are tested in this paper. The first hypothesis is about the expected difference between discounts on the bank and nonbank-affiliated CEFs.

H1. The size of the discount on bank (commercial and investment)-

¹⁰ The Capital Market Board of Turkey is similar to the Securities Exchange Commission of the US. It regulates the operations of the BIST, financial intermediaries operating in the exchange and the listed firms.

¹¹ For more information about the 2000–2001 crisis in Turkey, please see [Alper \(2001\)](#), [Alper and Öniş \(2004\)](#), [Arpac and Bird \(2009\)](#), [BRSA \(2009\)](#), and [Özatay and Sak \(2002\)](#).

Table 1

The yearly development of the BIST, 1988–2007.

Year	Trading volume (million USD)	Market capitalization (million USD)	% change in the index	Foreign investment (in million USD)	Number of firms listed	Number of closed end funds	Value of closed end funds (million USD)
1988	\$115	\$1128			79	0	\$0
1989	773	6756	367.84	\$17	76	0	0
1990	5854	18,737	14.64	89	110	0	0
1991	8502	15,564	-21.96	147	134	1	1
1992	8567	9922	-45.64	359	145	2	4
1993	21,770	37,824	205.67	753	160	2	16
1994	23,203	21,785	-50.40	1256	176	3	17
1995	52,357	20,782	-7.42	1936	193	9	20
1996	37,737	30,797	39.57	3085	213	14	40
1997	58,104	61,879	83.89	6018	244	16	78
1998	70,396	33,975	-50.71	3700	262	17	47
1999	84,034	114,271	241.77	15,358	256	21	122
2000	181,934	69,507	-50.58	7404	287	21	103
2001	80,400	47,689	-31.80	5635	279	22	66
2002	70,756	34,402	-33.95	3450	262	22	45
2003	100,165	69,003	111.38	8954	285	22	110
2004	147,755	98,073	38.11	16,141	297	23	212
2005	201,763	162,814	60.56	33,835	304	26	368
2006	229,642	163,774	-6.12	39,776	316	31	322
2007	300,842	289,986	72.14	70,262	319	31	370

This table shows the development of Borsa Istanbul since 1988. It reports total dollar value of traded shares, total market capitalization, the annual return on BIST-100 Composite index, the amount of investment by foreign investors, the number of companies and CEFs listed on the BIST, and the market capitalization of closed-end mutual funds at the end of each year until the end of sample period. (Source: BIST Bulletins.)

Table 2

Some characteristics of Turkish closed end funds: July 1995 – December 2007.

Closed end funds	First trading day	Mean discount (%)	Standard deviation of discount (%)	Mean NAV per share	Number of weeks in the sample
Panel A – Commercial Bank Affiliated Funds					
Ak	May 26, 1999	30.70	23.39	2.44	448
Alternatif	September 2, 1996	16.21	45.54	2.25	588
Demir (Deniz)	October 30, 1995	-13.14	58.93	1.81	615
Finans	April 22, 1996	39.38	15.39	2.17	607
Garanti	November 18, 1996	-9.13	69.49	4.18	577
İs	April 15, 1996	17.37	32.06	2.70	608
Oyak	May 4, 2007	21.98	7.45	1.10	35
Sinai Yatirim (TSKB)	October 23, 2001	11.90	41.54	1.49	322
Varlik	July 2, 1998	10.85	37.45	1.90	492
Vakif	August 28, 1991	7.98	38.92	2.90	647
Yapi Kredi	October 23, 1995	36.78	16.93	2.32	632
Yatirim Finansman	October 6, 1999	-3.90	37.46	1.50	429
Panel B – Investment Bank Affiliated Funds					
Ata	October 9, 1997	-7.08	39.77	3.79	531
Bumerang	May 29, 1995	21.54	35.91	1.52	647
Eczacibasi	January 26, 1999	13.20	34.60	1.83	465
Gedik	April 16, 1999	-6.49	32.82	1.89	454
Global	April 21, 1992	22.58	27.14	2.61	580
Tacirler	July 10, 2006	14.24	9.85	0.98	77
Panel C – Nonbank-Affiliated Funds					
Atlas	February 28, 1994	33.03	20.61	3.31	647
Atlantis	May 18, 1995	40.91	16.30	2.70	647
Avrasya	July 8, 1996	-30.23	63.99	1.81	523
Baskent	May 26, 2006	20.32	7.68	1.07	80
Euro	June 26, 2006	-31.97	39.26	1.03	45
Evg	July 11, 2005	18.63	12.20	1.32	128
Evren	March 14, 1995	27.78	31.77	2.73	647
Hedef	October 6, 2005	-7.06	11.29	0.91	116
Info	March 4, 2004	-2.68	26.28	1.01	199
Metro	June 2, 2006	-8.24	18.97	0.90	83
Mustafa Yilmaz	February 23, 1995	10.96	46.36	1.35	637
Tac	April 10, 1997	10.99	25.19	3.56	531
Taksim	June 2, 2006	-18.66	35.91	0.85	83

This table presents the major owner, first trading day, average discount, standard deviation of discount, average net asset value (NAV) of commercial bank-affiliated funds (Panel A), funds affiliated with only investment banks (Panel B), and nonbank-affiliated CEFs (Panel C) traded in Borsa Istanbul during the sample period July 1995 – December 2007. The number of observations changes depending on the first trading day of the fund.

affiliated CEFs is smaller than the size of the discount on nonbank-affiliated CEFs, controlling for other fund characteristics and market conditions.

There are two main reasons for expecting a lower discount on bank-affiliated CEFs than others. The first one is the high level of trust in banks among financial institutions (Sapientza & Zingales, 2012). This high trust in banks, partly due to stricter regulation of parent banks, is expected to spill over to the bank-affiliated CEFs as endowed trust and cause them to sell at lower discounts compared to nonbank-affiliated ones. The second reason is that banks have more information about companies because of their lending and investment banking relationships than other financial institutions, and they are expected to transfer their information advantages to their affiliated subsidiaries (Massa & Rehman, 2008; Puri, 1999) to improve their investment performances.

Even though all banks are subject to regulation, commercial banks are more regulated than investment banks. This higher regulation of commercial banks may increase investors' endowed trust in the commercial bank-affiliated CEFs more so than that in investment bank-affiliated ones, leading to a difference between their discounts. Moreover, commercial banks have interactions with individual investors because of their deposit collection activities. Hence, they are better known than investment banks by small investors who are more likely to invest in CEFs.

Not all commercial banks have the same reputation or trust in the market. Therefore, the second hypothesis is about the difference between the discounts on commercial (big or small) and investment bank-affiliated CEFs. Specifically,

H2. Size of the affiliated commercial bank affects the size of the discount on affiliated CEFs, controlling for other fund characteristics and market conditions.

There is empirical evidence showing that large commercial banks are different in their lending practices from small banks (Berger & Black, 2011; Berger, Miller, Petersen, Rajan, & Stein, 2005), indicating differences in their information advantages in the market. Large commercial banks might have relationship with higher number of firms and hence they have information about more firms than small banks. Furthermore, investors may be more familiar with large commercial banks and trust them more than small ones because they are believed to be "too big to fail."

The third hypothesis tests the effect of the banking crisis experienced during the sample period on the discounts of different groups of CEFs.

H3. Crisis affects the size of discounts on bank-affiliated CEFs differently from nonbank-affiliated ones, controlling for other fund characteristics and market conditions.

There is empirical evidence showing that banking crisis reduces the trust in all financial institutions (see for example, Guiso, 2010; Jansen, Mosch, & van der Crujisen, 2015; Sapientza & Zingales, 2012; Stevenson & Wolfers, 2011). Since the 2000–2001 crisis is mainly a banking crisis, the discount on bank-affiliated CEFs is expected to increase during the crisis. Since this crisis is not likely to affect investors' familiarity with banks and the information advantage of banks, any change in discounts

on bank-affiliated CEFs relative to that on unaffiliated ones during the banking crisis can be attributed to the decline in investors' trust in their affiliated banks (i.e. their endowed trust) during the banking crisis.

Since twelve commercial banks failed around the banking crisis period from October 2000 to November 2001, individual investors' trust in commercial banks is expected to decline more than that in other financial institutions.¹² This loss of trust in commercial banks might result in a higher increase in discounts on commercial bank-affiliated CEFs than that on investment bank-affiliated ones during the crisis.

In the literature, large commercial banks are shown to be affected less from financial crises than small ones (Demirgüç-Kunt, Detragiache, & Merrouche, 2013; Elyasiani & Mehdiian, 1995; Fahlenbrach, Prilmeier, & Stulz, 2012). Since almost all commercial banks that failed during the Turkish banking crisis were small,¹³ the change in the discounts of CEFs affiliated with big commercial banks during the banking crisis is expected to be smaller than the change in the discounts of other funds.

3.2. Empirical models and variable definitions

The following model (Model 1) is used to test the first two hypotheses:

$$DISC_{it} = \alpha + \beta BANK_i + \gamma CRISIS_t + \sum_{j=1}^N \phi_j CONTROL_{ijt} + \varepsilon_{it}$$

where $DISC_{it}$ indicates the discount on CEF i in period t . Using equity CEF prices relative to their NAVs, the percentage discount for a CEF i in a given period t , $DISC_{it}$, is calculated as follows:

$$DISC_{it} = \left[\frac{NAV_{it} - SP_{it}}{NAV_{it}} \right] \times 100$$

where NAV_{it} is the market value of a fund i 's portfolio and SP_{it} represents the stock price of fund i at the end of period t . Because of the way this variable is traditionally constructed, a positive $DISC_{it}$ value indicates a discount, and a negative value shows a premium.

$BANK_i$ is a dummy variable indicating bank affiliation of CEF i . Since affiliated CEFs have the title of their affiliated bank as part of their names, it is easy to identify bank-affiliated CEFs.¹⁴ The owners of other CEFs are either individuals or brokerage firms.

$CRISIS_t$ is an indicator variable having a value of 1 for the period between November 20, 2000 and September 30, 2001. It is not an easy task to determine the beginning and the ending of a crisis period. Several studies agree on the beginning and report that it started in the second

¹² The market reaction to the failure of banks is estimated using a market model. There were 13 days on which bank failures were announced for the sample period. In some days, the failure of more than one bank was reported. These days are taken as event days and the cumulative abnormal returns (CAR) of banks traded on the BIST are calculated for the period of 20 days prior to and after the events. There were 20 banks traded on the BIST, including 16 commercial banks, three investment banks and one participation bank. Four of these banks are state-owned. The minimum CAR is obtained on the event day; it is estimated that investors that purchased the bank stocks 20 days before the bank failure day lost almost 27% over the period of 21 days. The authors' calculations are available upon request.

¹³ The biggest bank failed during this period was Demirbank. It was ranked as the tenth in terms of its total assets among 79 banks before its failure in 2000. Furthermore, Demirbank is the only failed commercial bank with an affiliated CEF.

¹⁴ Only two CEFs, Varlik CEF and Yatirim Finansman CEF, do not have the name of their affiliated bank as part of their names. The ownership structure of CEFs without having the name of a bank as part of their title is examined to determine their bank affiliation. If a bank is among the majority owners of a CEF, it is considered as a bank-affiliated CEF.

half of November 2000.¹⁵ However, there is no agreement on the ending point of the banking crisis. Cömert and Yeldan (2018) state that the yield on government bonds declined to their level at the beginning of the crisis in the third quarter of 2001, marking the end of the crisis period. Moreover, the growth rate in GDP became positive for the first time after the crisis in the third quarter of 2001. As a result, September 30, 2001 is taken as the end of the crisis period even though three more banks failed after this date until July 2003.

$CONTROL_{ijt}$ represents N control variables included in the model. They are determined based on the empirical evidence in the literature regarding the factors affecting the discount on CEFs.¹⁶ They include some fund characteristics such as portfolio composition, diversification, liquidity, agency cost, ownership structure, size, past performance, dividend yield, and market characteristics such as investor sentiment and the return on the market index. Lag of discount is added to models to account for the high serial correlation in fund discounts. The models are estimated by using weekly and monthly observations. The control variables change slightly depending on their availability on a monthly or weekly basis. Definitions of control variables are presented in Table 3.

Three versions of Model 1 are estimated depending on the definition of $BANK$ dummy variable included in the model. In the first version (Model 1a), $BANK$ variable has a value of 1 for CEFs that are affiliated with commercial or investment banks and 0 otherwise. The coefficient of $BANK$, β , is expected to be negative according to the first hypothesis if trust in banks is transferred to the bank-affiliated financial institutions and/or bank-affiliated CEFs have an information advantage.

In the second version (Model 1b), $BANK$ dummy variable is replaced with two dummy variables $CBANK$ and $IBANK$, indicating ultimate affiliation with a commercial bank and an investment bank which is not a subsidiary of a commercial bank, respectively. Hence, this model is used to evaluate the difference in discounts on CEFs affiliated with commercial banks and those affiliated with pure investment banks. The coefficients of both bank types are expected to be negative according to the first hypothesis, but the absolute value of the coefficient of $CBANK$ is expected to be larger than that of $IBANK$.

In the third version of the model (Model 1c), commercial banks are classified as big and small based on their total assets, and two commercial bank dummy variables are created: $BCBANK$ and $SCBANK$. Five commercial banks with the highest total assets in each year during the sample period are classified as big and the remaining as small.¹⁷ $BCBANK$ ($SCBANK$) variable has a value of 1 for the CEFs that are affiliated with the largest five (remaining) commercial banks, and 0 otherwise. According to the second hypothesis, the coefficient of $BCBANK$ is expected to be larger in absolute value than the coefficient of $SCBANK$ if investors trust big commercial banks more than small ones.

An interaction variable between bank affiliation and crisis is added to Model 1 in order to test the third hypothesis. The following model (Model 2) is essentially a diff-in-diff model with control variables:

$$DISC_{it} = \alpha + \beta BANK_i + \gamma CRISIS_t + \delta BANK_i \times CRISIS_t + \sum_{j=1}^N \phi_j CONTROL_{ijt} + \varepsilon_{it}$$

As in the case of Model 1, three versions of Model 2 are estimated.

¹⁵ For example, Alper (2001) states that the beginning of the crisis is November 17, 2000 whereas Arpac and Bird (2009) take November 20, 2000 as the start of the crisis. Özatay and Sak (2002) mention that the financial crisis was started in November 2000.

¹⁶ Dimson and Minio-Kozerski (1999) has an excellent literature review on the determinants of the discounts on CEFs, providing both the explanations and the results of several empirical studies examining the discounts on the US and the UK CEFs. Cherkes (2012) summarizes the most recent theories explaining CEF discounts in addition to the old traditional explanations.

¹⁷ The big commercial banks are Akbank, Is Bank, Garanti Bank, Yapi Kredi Bank and Vakif Bank. The total assets of none of the investment banks were similar to those classified as big commercial banks.

They are with dummy variables $BANK$ (Model 2a), $CBANK$ and $IBANK$ (Model 2b), and $BCBANK$, $SCBANK$ and $IBANK$ (Model 2c).

According to the Hypothesis 3, the coefficient of the interaction variable, δ , is expected to be positive in all models (2a, 2b, and 2c) if bank (commercial (big or small) vs investment)-affiliated CEFs are affected differently than nonbank-affiliated ones from the local banking crisis.

3.3. Data sources and the sample period

The data used in the analyses are obtained from several publications and databases maintained by the BIST. NAVs of CEFs on Fridays, the number of shares outstanding at the funds' initial public offerings, their holdings in broad asset categories, including stocks by industry groupings, government bonds, repurchase agreements and foreign currencies as well as individual stocks included in their portfolios are hand collected from the Weekly and Monthly Bulletins of the BIST. Closing prices of stocks listed on the BIST, the level of BIST-100 composite index, and the information on dividend payments and the secondary equity offerings of CEFs are obtained from the databases maintained by the BIST. Closing prices and the number of shares outstanding are adjusted for stock splits and stock dividends. Information on ownership structure and administrative expenses are taken from the Annual Yearbooks of Companies published by the BIST.

The sample period analyzed in this paper starts on July 1995 because of data availability and ends on December 2007 because of the global financial crisis. In the literature, it is reported that the global financial crisis reduced the trust that investors have in financial institutions (Sapientza & Zingales, 2012). If trust is an important factor affecting the size of discounts, then covering the period with global financial crisis might affect our results. Moreover, the regulation of CEFs listed on Borsa Istanbul has changed significantly after the sample period of this paper.¹⁸ After these regularity changes, 19 of the equity CEFs included in the sample are reorganized as either a REIT or a money market CEF or an investment company. To eliminate the impact of these confounding status changes of CEFs and the global financial crisis, the sample period of this paper ends on December 31, 2007.

4. Empirical findings

In this section, first, the characteristics of bank-affiliated and other Turkish CEFs over the sample period are presented. Then, the results for the estimated models examining the impact of bank-affiliation and the banking crisis on the size of discounts on different groups of CEFs are discussed.

4.1. Characteristics of Turkish CEFs

The discount is the norm for Turkish CEFs during the period from July 1995 to December 2007. Fig. 1 presents the movement of the average value-weighted discount of all Turkish funds and the BIST-100 index for the sample period. The average CEF discount fluctuates from week to week, similar to discounts on CEFs in developed markets. Interestingly, the CEFs were selling at a premium on average at the beginning of the crisis period. During the crisis, the average discount

¹⁸ First, the reduction of commissions eliminated the benefit of having a closed-end mutual fund for the financial intermediaries. Second, the regulation enacted on July 23, 2010, resulted in a change in the status of these funds, making them less liquid in the market. According to this regulation, those funds with NAVs >1.5 times their stock price are not allowed to be short sold or purchased on margin. Moreover, those with NAVs more than two times their stock price are allowed to be traded on a one-price system rather than continuous trading during the day. Finally, the tax advantage of equity CEFs is eliminated in August 2013.

Table 3
The characteristics of Turkish closed end funds.

Variable	Definition	Whole sample period			Crisis period			Noncrisis period			t-test
		Mean	St. Dev	N	Mean	St. Dev	N	Mean	St. Dev	N	
DISC	Percentage discount from NAV (%)	12.72	42.26	13,221	20.13	43.26	945	12.15	42.13	12,276	-5.60
Portfolio Characteristics of Funds											
SHOLD	Share of NAV invested in stocks (%)	58.83	22.37	13,221	58.72	27.07	945	58.84	21.97	12,276	0.14
S3DECILE	Share of NAV invested in the smallest three size deciles (%)	4.59	8.34	3919	3.46	4.50	259	4.67	8.55	3660	3.87
NINDUSTRY	Number of different industries invested	8.31	2.77	13,116	8.22	2.08	945	8.32	2.81	12,171	1.38
NSTOCKS	Number of different stocks held	16.61	7.12	3921	14.42	5.29	259	16.76	7.21	3662	6.70
Liquidity Measures											
WTURNOVER	Weekly volume/number of shares outstanding	8.76	16.31	13,221	2.48	5.41	945	9.24	16.76	12,276	29.11
MTURNOVER	Monthly volume/number of shares outstanding	43.04	58.74	3921	11.27	19.29	259	45.28	59.93	3662	21.88
Other Characteristics of Funds											
LNEXP (Real)	Log of general expenses adjusted for inflation	13.62	0.76	13,221	13.61	0.71	945	13.62	0.76	12,276	0.13
LARGE	Ownership share of the largest shareholder	24.65	20.33	13,221	31.22	19.28	945	24.14	20.32	12,276	-10.83
SIZE (Real)	Logarithm of market value adjusted for inflation	15.89	1.06	13,221	15.58	1.14	945	15.91	1.05	12,276	8.54
RNAV	Weekly Return on NAV	0.26	5.69	13,192	-0.46	7.97	945	0.31	5.47	12,247	2.93
MRNAV	Monthly Return on NAV	1.13	13.06	3895	-1.94	15.57	259	1.34	12.83	3636	3.31
DIVYIELD	Adjusted dividend paid/NAV	7.77	26.26	13,221	5.98	14.71	945	7.91	26.94	12,276	3.59

The descriptive statistics of the characteristics of all closed-end funds traded in Borsa Istanbul are presented for the sample period July 1995 – December 2007, during the banking crisis period (November 2000 – September 2001) and noncrisis period. N represents the number of observations for each variable. It changes depending on the availability of the data on a weekly or monthly basis. The t-test column reports the t-statistic testing the hypotheses that the mean values of the characteristics of CEFs are equal in crisis and noncrisis periods.

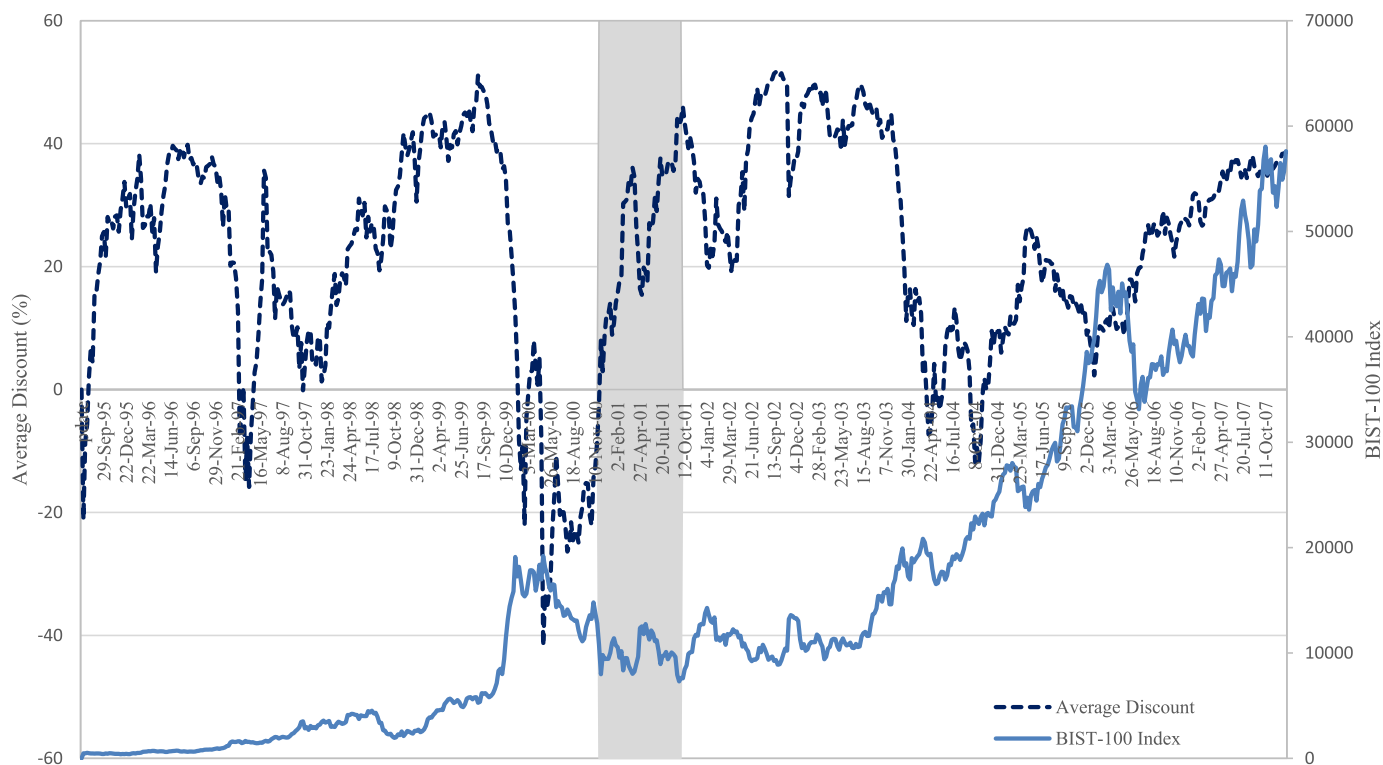


Fig. 1. Average discount on CEFs and BIST-100 index, July 1995–December 2007.

changed from a premium of 8.31% on November 17, 2000 to a highest discount of 44.92% on September 14, 2001. The BIST-100 index and the average value weighted discount on CEFs move in opposite direction throughout the sample period, confirming the relationship documented between CEF discounts and investor sentiment in developed and emerging markets. In order to eliminate the impact of the extreme values of discounts or premiums on some funds, discount variable is

winsorized at 5%.

Fig. 2 presents average value weighted discounts on commercial bank-, investment bank- and nonbank-affiliated CEFs. Although commercial and investment bank-affiliated funds trade at a premium in some periods, unaffiliated funds trade at a discount >90% of the sample period. These differences in discounts on commercial bank-, investment bank- and nonbank-affiliated CEFs highlight the importance of

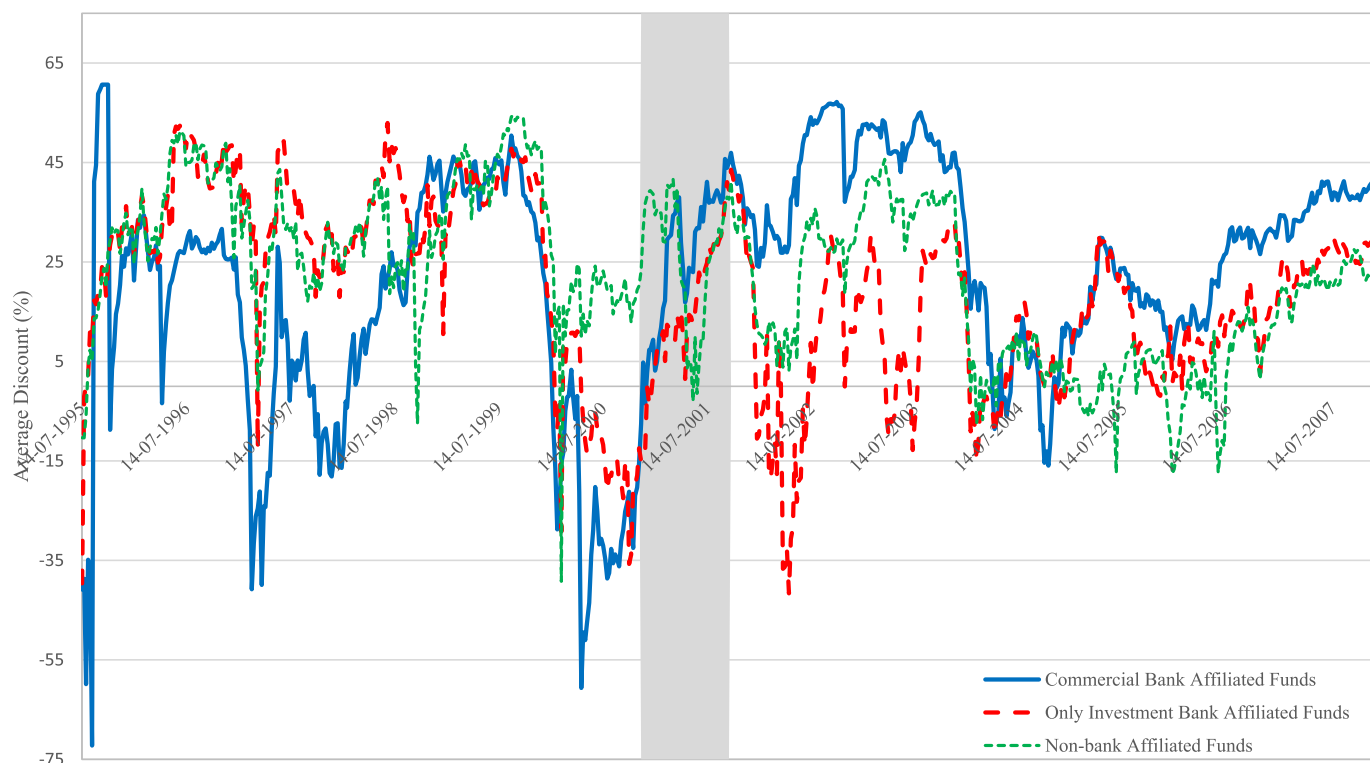


Fig. 2. Average discount on bank-affiliated and unaffiliated CEFs, July 1995–December 2007.

controlling for affiliated bank type in empirical models. Even though the average discount on commercial bank-affiliated funds is lower than those on investment bank-affiliated and nonbank-affiliated funds for almost all the weeks until the banking crisis, this relationship is reversed after the crisis. This change in the relationship might stem from a differential effect of the local banking crisis on discounts of different groups of CEFs. Furthermore, the average discount on investment bank-affiliated funds resembles that on nonbank-affiliated CEFs and quite distinct from the average discount on commercial bank-affiliated CEFs before the crisis. This difference in discounts on different CEF groups indicates that investors do not perceive the value associated with all bank-affiliations to be the same. Average discounts on different CEFs suggest that investors lost their trust in both commercial and investment

bank-affiliated CEFs after the failure of several commercial banks during the financial crisis. This loss of trust in the banks might explain the increase in the average discount on bank-affiliated funds after the crisis.^{19,20}

Not only bank affiliation or the type of bank affiliation, but also the size of the affiliated commercial bank might be important in explaining the size of the discounts on CEFs. Fig. 3 shows the average value weighted discount on big- and small-commercial bank-affiliated funds during the sample period. Just before the start of the banking crisis, both small and big commercial bank-affiliated CEFs are selling at a premium. Interestingly, the small commercial bank-affiliated CEFs start trading at a discount after the wave of bank failures in October 2000. In contrast, the big commercial bank-affiliated CEFs start trading at a discount after

¹⁹ Among the failed banks during the crisis, only Demirbank had a CEF, called the Demir Fund. The discount on this fund at the beginning of the crisis was only 3.15%. However, when the control of Demirbank was transferred to Saving Deposits Insurance Fund (SDIF) on December 6, 2000, the discount on the Demir Fund was 55.73%, the highest discount in its history until that point in time. Although one might think that increase in the discount of this bank-affiliated fund might be the reason for an increase in the size of average discount for bank-affiliated funds after the crisis, the elimination of the Demir Fund from the calculation of average discounts does not have an effect on the relationship between the discounts on commercial bank-affiliated and other funds. The failure of the affiliated bank did not lead to the liquidation of the Demir Fund. The ownership of this fund was transferred to another commercial bank (Denizbank) and it was renamed as the Deniz Fund.

²⁰ During the sample period, Avrasya Fund, a nonbank-affiliated fund, has been under investigation for possible manipulation in its price and the premium on this fund was much higher than the highest premium that is observed for other mutual funds during the sample period. During the period of manipulation investigation, the average premium on this fund was 558.68% and it ranged from 231.18% to 1390.60%. Therefore, the discount variable is winsorized at 5%. Furthermore, the models are re-estimated by excluding Avrasya Fund from the sample, major findings did not change as reported in the robustness section.

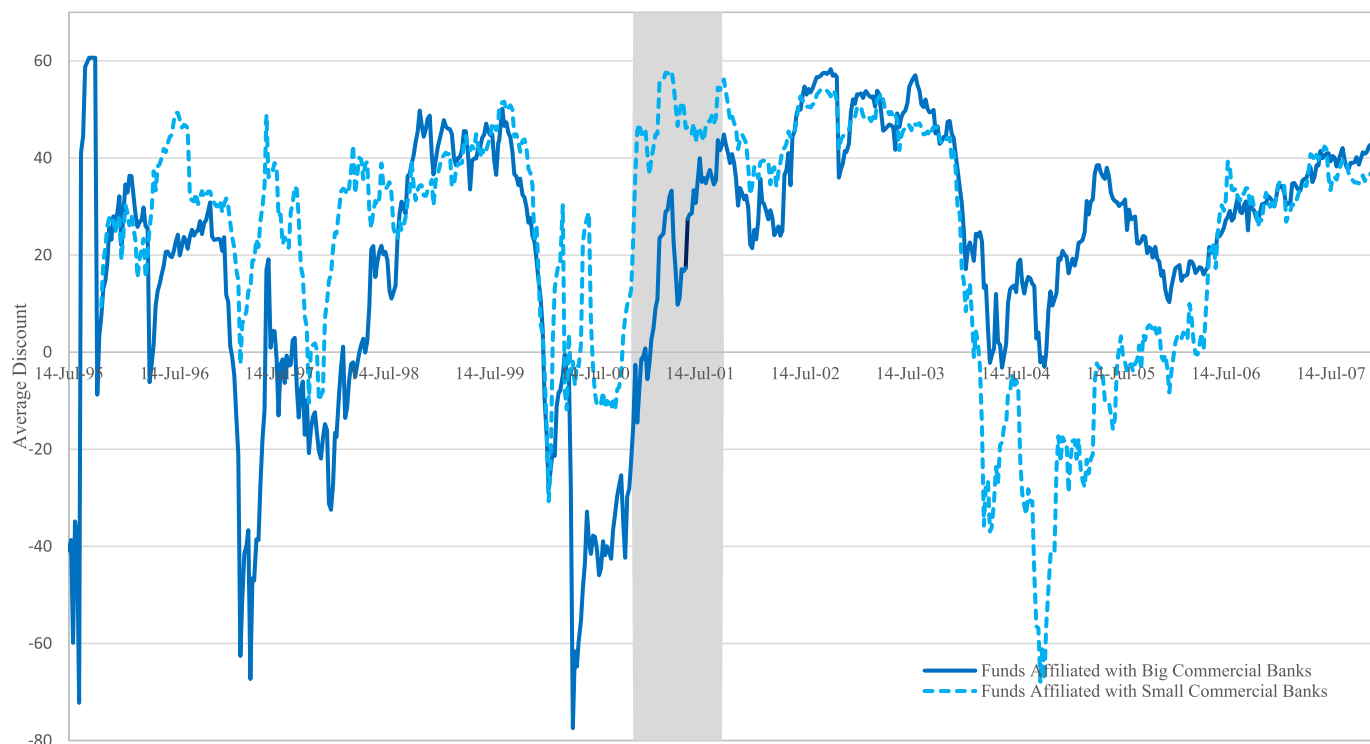


Fig. 3. Average discount on small and big commercial bank-affiliated CEFs, July 1995–December 2007. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Note: The gray area indicates the banking crisis period.

the failure of Demirbank, only failed commercial bank with an affiliated fund, on December 6th, 2000. In general, average discount on big commercial bank-affiliated CEFs is lower than that on small commercial bank-affiliated CEFs implying that not all commercial bank affiliations are of the same value.

Table 2 presents some characteristics of the 31 equity CEFs traded on

the BIST during the sample period. The number of observations for each fund changes depending on its initial public offering date. Turkish CEFs are, on average, sold at a discount, in line with the findings for the US funds. However, there are large fluctuations across funds in terms of average discounts, similar to other emerging markets (for example, see Chan, Kot, & Li, 2008). The average discount on individual funds during

Table 4
Characteristics of bank-affiliated and nonbank-affiliated CEFs in the whole sample period.

	Commercial banks			Investment banks			No bank affiliation			Commercial banks					
	Mean	St.Dev.	N	Mean	St.Dev.	N	Mean	St.Dev.	N	Big banks			Small banks		
										Mean	St.Dev.	N	Mean	St.Dev.	N
<i>DISC</i>	13.39	44.78	5983	9.88	35.79	2962	13.74	42.69	4276	16.30	43.81	2912	10.64	45.52	3071
Portfolio Characteristics of Funds															
<i>SHOLD</i>	49.86	17.10	5983	61.42	22.03	2962	69.60	23.85	4276	45.87	14.01	2912	53.64	18.81	3071
<i>S3DECILE</i>	1.41	2.97	1729	3.58	6.76	908	9.60	11.36	1282	1.18	2.27	893	1.65	3.56	836
<i>NINDUSTRY</i>	8.79	3.00	5981	7.58	2.53	2863	8.12	2.43	4272	8.88	2.18	2912	8.71	3.61	3069
<i>NSTOCKS</i>	18.47	7.61	1729	14.06	6.63	908	15.91	6.00	1284	19.98	6.30	893	16.86	8.51	836
Liquidity Measures															
<i>WTURNOVER</i>	8.45	15.59	5983	8.63	14.11	2962	9.28	18.54	4276	6.62	13.00	2912	10.18	17.53	3071
<i>MTURNOVER</i>	37.63	51.45	1729	39.19	43.92	908	53.04	73.92	1284	30.81	40.45	893	44.92	60.24	836
Other Characteristics of Funds															
<i>LNEXP (Real)</i>	13.83	0.78	5983	13.38	0.78	2962	13.49	0.63	4276	13.96	0.64	2912	13.70	0.87	3071
<i>LARGE</i>	21.75	16.85	5983	27.42	19.76	2962	26.79	24.26	4276	21.78	15.56	2912	21.72	17.99	3071
<i>SIZE(Real)</i>	16.30	1.19	5983	15.50	0.81	2962	15.59	0.79	4276	16.80	1.14	2912	15.82	1.02	3071
<i>RNAV</i>	0.26	5.47	5972	0.21	5.58	2953	0.27	6.06	4267	0.32	5.84	2907	0.21	5.08	3065
<i>MRNAV</i>	1.39	12.19	1720	0.88	12.49	903	0.94	14.51	1272	1.43	12.58	890	1.36	11.76	830
<i>DIVYIELD</i>	4.32	10.87	5983	7.39	27.04	2962	12.86	37.66	4276	6.60	13.41	2912	2.16	7.08	3071

This table presents the mean and standard deviation of the characteristics for bank- (commercial and investment) affiliated and nonbank-affiliated CEFs. Commercial banks are further classified as big (largest five commercial banks based on total assets) and small. All the mean characteristics are found to be significantly different for affiliated and unaffiliated CEFs at 1% significance level for the whole sample period except return on NAV and turnover. All the mean fund characteristics for big and small commercial bank-affiliated funds are significantly different except return on NAV and the percentage of the company owned by the largest shareholder.

the sample period ranges from a premium of 31.97% for Euro Fund to a discount of 40.91% for Atlantis Fund, both nonbank-affiliated funds.

Descriptive statistics on several fund characteristics are presented in Table 3 for the whole sample period, and separately for crisis and noncrisis periods. The *t*-test column reports *t*-statistics testing the hypotheses that the mean values of the fund characteristics are equal in banking crisis and noncrisis periods. The average discount is significantly higher in the crisis period than that in noncrisis period. Funds seem to reduce their holdings of small stocks and the number of stocks in their portfolios during the crisis period significantly even though there is no significant difference in their portfolio allocations to stocks. The turnover ratio and dividend yield are lower in the crisis period, but there is no significant difference in terms of administrative expenses. Furthermore, return on NAV and the fund size are significantly lower in the crisis period. The average ownership share of the largest shareholder is significantly higher during the crisis period than in the noncrisis period.

Table 4 reports the unweighted mean values of the characteristics of CEFs affiliated with different bank types. The funds that are affiliated with commercial banks have higher average discounts than funds affiliated with investment banks. Furthermore, CEFs affiliated with big commercial banks are selling on average at a higher discount than those affiliated with small commercial banks, or investment banks, or no banks. Differences in these mean values are inconsistent with the main hypotheses of this paper. However, differences in the portfolio and other characteristics of these funds reported in Table 4 highlight the importance of controlling these fund characteristics when comparing the discounts on these funds.

Univariate analyses indicate that CEFs with different affiliations have quite different portfolios and other characteristics. Commercial bank-, investment bank- and nonbank-affiliated CEFs are found to allocate almost 50%, 60%, and 70% of their portfolios to stocks, respectively. Commercial bank-affiliated funds and funds affiliated with big commercial banks seem to diversify their portfolios more than other funds by holding shares of more companies from different industries. Unaffiliated funds, on average, invest in 16 stocks from eight sectors, whereas commercial bank-affiliated funds invest in 18.5 stocks from almost nine sectors. Furthermore, unaffiliated funds invest significantly more in stocks from the smallest three deciles²¹ (9.6%) than investment (3.58%) and commercial bank-affiliated funds (1.4%).

The ownership characteristic of CEFs affiliated with investment banks is similar to those of unaffiliated CEFs. On average, the percentage of fund's shares held by the largest shareholder is 27% for nonbank and investment bank-affiliated funds but 22% for commercial bank-affiliated funds. The average turnover rate is highest among nonbank-affiliated funds and lowest among big commercial bank-affiliated funds. The funds affiliated with big commercial banks are also big in size.

No significant difference is observed between bank- and nonbank-affiliated funds regarding their return on NAV. Nonbank-affiliated funds provide investors with a higher dividend yield than commercial or investment bank-affiliated funds (12.86% versus 4.32% or 7.39%). Furthermore, all of the fund characteristics of big and small commercial bank-affiliated funds are significantly different for the whole sample period, except the return on NAV and the percentage of the company owned by the largest shareholder. Except for turnover ratios and return on NAV, all of the average characteristics of commercial bank-, investment bank- and nonbank-affiliated funds are found to be statistically significantly different from each other.

Overall, these univariate results provide some justification for analyzing funds with different bank- (commercial and investment) affiliation, and big and small commercial bank-affiliation separately.

²¹ All of the stocks traded in the BIST are divided into ten decile portfolios in terms of their market capitalization every year. Then, the proportion of fund's assets invested in the smallest three size decile portfolios are calculated.

Furthermore, they highlight the importance of controlling for fund characteristics while analyzing the effect of bank affiliation on the discounts of CEFs and how this discount is affected by the banking crisis.

4.2. Bank affiliation, banking crisis and discount on CEFs

The Generalized Method of Moment (GMM) estimates of all models are presented in Table 5 – Panel A. The models with weekly and monthly observations explain about 95 and 86% of the variation in CEF discounts, respectively. The coefficients of the bank-affiliation variables are found to be similar when weekly or monthly observations are used in the estimations.

In Models 1a and 2a, funds affiliated with a commercial or an investment bank are indicated by the bank variable (*BANK*). It is found that funds affiliated with a bank, commercial or investment, trade at a significantly lower discount than those not affiliated with banks, controlling for fund characteristics and the market conditions (columns 1 and 4). These results support the first hypothesis that investors are willing to pay a higher price when investing in bank-affiliated CEFs. The significant and negative coefficient on *BANK* variable suggests that either the higher trust in banks or information advantage of banks spills over to the bank-affiliated funds trading in this emerging market.

When the model with *BANK* × *CRISIS* interaction term (model 2a) is estimated, *BANK* variable preserves its negative and statistically significant coefficient. However, the coefficient of the interaction variable (δ) is positive and significant (columns 7 and 10), indicating an increase in the size of the discount on bank-affiliated CEFs during the banking crisis period. These coefficients support the third hypothesis that the size of discount on bank-affiliated funds increase with banking crisis.

The result of the Wald test (Table 5 – Panel B) shows that the sum of coefficients for *BANK* and *BANK* × *CRISIS* is 1.1394 and statistically significant, indicating a significantly higher discount on bank-affiliated CEFs than that on nonbank-affiliated funds during the banking crisis period with weekly estimations. Since a change in the information advantage of commercial and investment banks during the crisis period is highly unlikely, this difference can be attributed to the decline of trust in banks during the banking crisis. However, discounts on bank-affiliated and nonbank-affiliated funds are not significantly different during the banking crisis in estimations with monthly observations even though the discount on bank-affiliated funds during the banking crisis is found to be positive. In Models 1a and 2a, we assume that commercial and investment bank affiliation has the same effect on the discounts on their affiliated funds. We will examine the validity of this assumption in the following subsection.

In terms of fund characteristics, liquidity and dividend yield (with weekly observations) of a fund decrease its discount significantly, whereas an increase in administrative expenses of a fund, a proxy for agency costs, increases its discount as expected. When the ownership of the largest shareholder increases, the size of the discount declines significantly, indicating better monitoring by the largest shareholder. As the size of the CEF increases, its discount increases as well due to increased complexity of the fund structure and management. Moreover, the more diversified a fund's portfolio is in terms of the number of industries invested in, the lower its discount is. An increase in the allocation of a fund's portfolio to the stocks from the lowest three deciles, i.e. riskier securities, increases its discount. Furthermore, the higher the return on the portfolio of a CEF, the lower its discount is. Consistent with the literature on investor sentiment, the return on the market index, a proxy for optimism in the market, has a negative effect, while the average discount on CEFs, a proxy for pessimism in the market, has a positive impact on the discount of individual CEFs. Moreover, discounts on CEFs are quite persistent. In general, the effects of the fund characteristics on the size of discounts are similar in estimations with weekly and monthly observations.

Table 5
Empirical results – effect of bank-affiliation and banking crisis on closed-end fund discounts.

Panel A – GMM estimation results												
	Model 1						Model 2					
	Weekly data			Monthly data			Weekly data			Monthly data		
Models	1a (1)	1b (2)	1c (3)	1a (4)	1b (5)	1c (6)	2a (7)	2b (8)	2c (9)	2a (10)	2b (11)	2c (12)
<i>BANK</i> (β)	-0.5810 (0.0015)			-1.6380 (0.0123)			-0.6917 (0.0002)			-1.9873 (0.0028)		
<i>IBANK</i> (β_I)		-0.2991 (0.1477)	-0.3052 (0.1399)		-0.9592 (0.1695)	-1.0256 (0.1428)		-0.3884 (0.0727)	-0.3954 (0.0680)		-1.2711 (0.0794)	-1.3449 (0.0646)
<i>CBANK</i> (β_C)		-0.8237 (0.0003)			-2.3077 (0.0033)			-0.9320 (<0.0001)			-2.6572 (0.0008)	
<i>BCBANK</i> (β_{BIG})			-1.2461 (<0.0001)			-3.3587 (0.0004)			-1.3244 (<0.0001)			-3.5627 (0.0002)
<i>SCBANK</i> (β_{SMALL})			-0.5763 (0.0225)			-1.6678 (0.0560)			-0.7160 (0.0060)			-2.1734 (0.0142)
<i>BANK</i> \times <i>CRISIS</i> (δ)							1.8311 (0.0049)			5.5198 (0.0323)		
<i>IBANK</i> \times <i>CRISIS</i> (δ_I)								1.4636 (0.0397)	1.4977 (0.0353)		4.9501 (0.0658)	5.0953 (0.0580)
<i>CBANK</i> \times <i>CRISIS</i> (δ_C)								1.9653 (0.0061)			5.7748 (0.0391)	
<i>BCBANK</i> \times <i>CRISIS</i> (δ_{BIG})									1.5441 (0.0654)			3.6333 (0.2596)
<i>SCBANK</i> \times <i>CRISIS</i> (δ_{SMALL})									2.3852 (0.0036)			7.6388 (0.0132)
<i>CRISIS</i>	0.3233 (0.2627)	0.3428 (0.2349)	0.3829 (0.1826)	2.6365 (0.0156)	2.7288 (0.0122)	2.7990 (0.0097)	-0.9801 (0.0879)	-0.9392 (0.1017)	-0.9043 (0.1150)	-1.3799 (0.5572)	-1.2743 (0.5869)	-1.1834 (0.6132)
<i>SHOLD</i>	0.0038 (0.4532)	0.0012 (0.8110)	0.0003 (0.9552)	-0.0225 (0.1391)	-0.0293 (0.0659)	-0.0336 (0.0361)	0.0047 (0.3546)	0.0025 (0.6393)	0.0016 (0.7626)	-0.0194 (0.1997)	-0.0257 (0.1050)	-0.0293 (0.0676)
<i>NINDUSTRY</i>	-0.0724 (0.0467)	-0.0592 (0.1096)	-0.0633 (0.0901)				-0.0721 (0.0475)	-0.0587 (0.1129)	-0.0606 (0.1047)			
<i>NSTOCKS</i>				-0.0730 (0.1108)	-0.0499 (0.3000)	-0.0447 (0.3502)				-0.0702 (0.1269)	-0.0466 (0.3354)	-0.0396 (0.4072)
<i>S3DECILE</i>				0.0637 (0.0350)	0.0571 (0.0613)	0.0585 (0.0562)				0.0578 (0.0572)	0.0513 (0.0940)	0.0524 (0.0887)
<i>TURNOVER</i>	-0.1067 (<0.0001)	-0.1069 (<0.0001)	-0.1079 (<0.0001)	-0.0705 (<0.0001)	-0.0709 (<0.0001)	-0.0716 (<0.0001)	-0.1071 (<0.0001)	-0.1073 (<0.0001)	-0.1083 (<0.0001)	-0.0709 (<0.0001)	-0.0714 (<0.0001)	-0.0720 (<0.0001)
<i>LNEXP</i> (<i>Real</i>)	0.5374 (<0.0001)	0.5674 (<0.0001)	0.5250 (<0.0001)	1.0735 (0.0110)	1.1529 (0.0059)	1.0545 (0.0129)	0.5216 (<0.0001)	0.5486 (<0.0001)	0.5009 (<0.0001)	1.0084 (0.0175)	1.0839 (0.0101)	0.9566 (0.0243)
<i>LARGE</i>	-0.0272 (<0.0001)	-0.0282 (<0.0001)	-0.0285 (<0.0001)	-0.0891 (<0.0001)	-0.0924 (<0.0001)	-0.0938 (<0.0001)	-0.0265 (<0.0001)	-0.0274 (<0.0001)	-0.0278 (<0.0001)	-0.0868 (<0.0001)	-0.0899 (<0.0001)	-0.0914 (<0.0001)
<i>SIZE</i> (<i>Real</i>)	0.4412 (<0.0001)	0.4762 (<0.0001)	0.5836 (<0.0001)	1.7729 (<0.0001)	1.7670 (<0.0001)	2.0092 (<0.0001)	0.4558 (<0.0001)	0.4888 (<0.0001)	0.6014 (<0.0001)	1.8167 (<0.0001)	1.8050 (<0.0001)	2.0792 (<0.0001)
<i>RNAV</i> _{t-1}	-0.1184 (0.0003)	-0.1182 (0.0003)	-0.1184 (0.0003)	-0.1105 (<0.0001)	-0.1093 (<0.0001)	-0.1103 (<0.0001)	-0.1190 (0.0003)	-0.1189 (0.0003)	-0.1190 (0.0003)	-0.1127 (<0.0001)	-0.1116 (<0.0001)	-0.1128 (<0.0001)
<i>DIVYIELD</i>	-0.0085 (0.0950)	-0.0089 (0.0811)	-0.0086 (0.0907)	0.0091 (0.2816)	0.0083 (0.3328)	0.0088 (0.2959)	-0.0084 (0.0950)	-0.0089 (0.0803)	-0.0085 (0.0911)	0.0091 (0.2731)	0.0083 (0.3272)	0.0090 (0.2812)
<i>ADISCOUNT</i>	0.0582 (<0.0001)	0.0587 (<0.0001)	0.0593 (<0.0001)	0.1689 (<0.0001)	0.1696 (<0.0001)	0.1703 (<0.0001)	0.0587 (<0.0001)	0.0592 (<0.0001)	0.0600 (<0.0001)	0.1703 (<0.0001)	0.1710 (<0.0001)	0.1726 (<0.0001)
<i>R_BIST</i>	-0.1098 (<0.0001)	-0.1096 (<0.0001)	-0.1095 (<0.0001)	-0.1339 (0.1190)	-0.1275 (0.1411)	-0.1332 (0.1230)	-0.1097 (<0.0001)	-0.1094 (<0.0001)	-0.1094 (<0.0001)	-0.1294 (0.1328)	-0.1219 (0.1613)	-0.1316 (0.1304)
<i>DISCOUNT</i> _{t-1}	0.9491 (<0.0001)	0.9487 (<0.0001)	0.9481 (<0.0001)	0.8431 (<0.0001)	0.8429 (<0.0001)	0.8424 (<0.0001)	0.9487 (<0.0001)	0.9482 (<0.0001)	0.9476 (<0.0001)	0.8421 (<0.0001)	0.8419 (<0.0001)	0.8409 (<0.0001)
<i>Intercept</i>	-12.4657	-13.3207	-14.3168	-36.4586	-37.1904	-39.3740	-12.4848	-13.2950	-14.3242	-36.2814	-36.9153	-39.2993

(continued on next page)

Table 5 (continued)

Panel A – GMM estimation results												
	Model 1						Model 2					
	Weekly data		Monthly data				Weekly data		Monthly data			
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
<i>Adjusted R²</i>	0.9516	0.9516	0.9516	0.8658	0.8659	0.8661	0.9516	0.9516	0.9516	0.8660	0.8662	0.8664
<i>N</i>	13,056	13,056	13,056	3859	3859	3859	13,056	13,056	13,056	3859	3859	3859
Panel B – Hypothesis Testing												
<i>Test of Equality of Coefficients</i>												
<i>H₀: β_I = β_C</i>												
<i>χ²</i>		5.10			3.56			5.05			3.53	
<i>(p-value)</i>		(0.0240)			(0.0590)			(0.0246)			(0.0601)	
<i>H₀: β_{BIG} = β_{SMALL}</i>												
<i>χ²</i>			5.59			3.41			4.26			2.16
<i>(p-value)</i>			(0.0181)			(0.0649)			(0.0391)			(0.1415)
<i>H₀: β_{BIG} = β_I</i>												
<i>χ²</i>			11.25			7.44			10.33			6.43
<i>(p-value)</i>			(0.0008)			(0.0064)			(0.0013)			(0.0112)
<i>H₀: β_{SMALL} = β_I</i>												
<i>χ²</i>			1.06			0.59			1.34			0.90
<i>(p-value)</i>			(0.3033)			(0.4435)			(0.2471)			(0.3420)
<i>H₀: δ_I = δ_C</i>												
<i>χ²</i>								0.65			0.16	
<i>(p-value)</i>								(0.4209)			(0.6903)	
<i>H₀: δ_{BIG} = δ_{SMALL}</i>												
<i>χ²</i>									1.00			1.77
<i>(p-value)</i>									(0.3166)			(0.1837)
<i>H₀: δ_{BIG} = δ_I</i>												
<i>χ²</i>									0.00			0.03
<i>(p-value)</i>									(0.9513)			(0.5780)
<i>H₀: δ_{SMALL} = δ_I</i>												
<i>χ²</i>									1.45			1.07
<i>(p-value)</i>									(0.2292)			(0.2999)
<i>Test of Coefficients for Banks during Crisis</i>												
<i>H₀: β + δ = 0 Coefficient</i>												
<i>(p-value)</i>							1.1394			3.5325		
							(0.0726)			(0.1615)		
<i>H₀: β_I + δ_I = 0 Coefficient</i>												
<i>(p-value)</i>								1.0753	1.1023		3.6790	3.7504
								(0.1137)	(0.1048)		(0.1566)	(0.1478)
<i>H₀: β_C + δ_C = 0 Coefficient</i>												
<i>(p-value)</i>								1.9653			3.1176	
								(0.1446)			(0.2631)	
<i>H₀: β_{BIG} + δ_{BIG} = 0 Coefficient</i>												
<i>(p-value)</i>							0.2197			0.0706		
									(0.7917)			(0.9825)
<i>H₀: β_{SMALL} + δ_{SMALL} = 0 Coefficient</i>												
<i>(p-value)</i>									1.6692		5.4654	
									(0.0362)			(0.0722)

The results of the GMM estimations that examine the effect of bank (commercial (big or small) and investment) affiliation of CEFs on their discounts (Model 1) and the effect of banking crisis on affiliated and unaffiliated CEF discounts (Model 2) are presented in Panel A. The dependent variable is the discount on CEFs. The *p*-values of the estimated coefficients are reported in parentheses. The χ^2 statistics and corresponding *p*-values are reported in Panel B for hypothesis testing. They represent the results of testing different hypotheses on the coefficients of bank related variables.

4.3. Does affiliated bank type matter?

The GMM results of the Model 1b are presented in columns (2) and (5) with weekly and monthly observations, respectively. The *BANK* dummy variable in Models 1a and 2a is replaced with *IBANK* and *CBANK* dummy variables to distinguish between an investment and a commercial bank-affiliated CEF in Models 1b and 2b (columns 8 and 11), respectively. Funds affiliated with commercial banks are found to trade at a significantly lower discount than unaffiliated funds, whereas no significant difference is observed between discounts on investment bank-affiliated and unaffiliated funds. Moreover, coefficients on *CBANK* is found to be significantly lower than that on *IBANK*, supporting the first hypothesis (Panel B of Table 5). This finding indicates that affiliated bank types do matter. The lower discount on commercial bank-affiliated CEFs could be due to higher trust of investors in commercial banks, or higher informational advantage of commercial banks or better certification ability of commercial banks than investment banks. The familiarity of small investors with commercial banks may also explain the significant difference in discounts of commercial and investment bank-affiliated CEFs.

During the banking crisis, the discounts on commercial and investment bank-affiliated funds increase significantly more than those of the unaffiliated funds (columns 8 and 11) as indicated by coefficients of *CBANK* × *CRISIS* and *IBANK* × *CRISIS* variables. However, coefficients on these interaction variables are not significantly different from each other (Panel B of Table 5). These results suggest that banking crisis affects the size of discounts on commercial and investment bank affiliated funds in a similar way.

The Wald test (Panel B) on the summed coefficients for *CBANK* and *CBANK* × *CRISIS* ($\beta_{CBANK} + \delta_{CBANK}$), and *IBANK* and *IBANK* × *CRISIS* ($\beta_{IBANK} + \delta_{IBANK}$) show that discounts on both types of bank-affiliated funds are not any different than that on nonbank-affiliated funds during the banking crisis period. Although the effect of being affiliated with a commercial bank on CEF discounts is significantly higher than that of being affiliated with an investment bank during noncrisis period, this advantage disappears during the crisis period. In other words, there is not a significant difference in discounts on commercial and investment bank-affiliated and unaffiliated CEFs during the crisis period.

These findings suggest that the loss of trust in commercial banks during the crisis eliminates the premium that investors pay for the commercial bank-affiliated CEFs. The test of the equality of the coefficients on commercial and investment bank dummy variables shows that discounts on commercial bank-affiliated funds is lower than that on investment bank-affiliated ones for the whole sample period whereas the combined coefficients indicate that the discounts on the commercial bank- or investment bank-affiliated funds are not different from the discounts on unaffiliated funds during the banking crisis. Although only commercial banks failed during the banking crisis, funds affiliated with investment banks also seemed to be affected adversely by the local banking crisis.

In summary, CEFs that are affiliated with a commercial bank trade at a smaller discount than those affiliated with an investment bank or unaffiliated ones whereas discounts on investment bank-affiliated CEFs are found to be similar to those on unaffiliated funds during the sample period (columns 2 and 5). The local banking crisis eliminates the advantage of being affiliated with a commercial bank, therefore CEFs affiliated with commercial banks trade at similar discounts with investment bank- and nonbank-affiliated ones during crisis period. These findings suggest that the main reason for commercial bank-affiliated CEFs selling at a lower discount than unaffiliated funds is the endowed trust in commercial bank-affiliated funds not their information advantage.

4.4. Does the size of the affiliated commercial bank matter?

The estimations of model 1c to test the second hypothesis are

reported in columns (3) and (6) of Table 5 by using weekly and monthly observations, respectively. In this model, *BCBANK* and *SCBANK* dummy variables are substituted in place of *CBANK* variable to distinguish big and small commercial bank affiliation of CEFs, respectively. It is found that commercial bank-affiliated funds, regardless of the size of their affiliated commercial bank, trade at a lower discount than the unaffiliated funds. Funds affiliated with big commercial banks trade at a significantly lower discount than those affiliated with small commercial banks and investment banks as reported in Panel B. This finding supports the second hypothesis. However, discounts on investment bank-affiliated CEFs are not found to be significantly different from those on small commercial bank-affiliated funds or unaffiliated funds. The lowest discount on CEFs affiliated with big commercial banks can be explained by the investors' higher trust in or familiarity with big commercial banks compared to small commercial banks and investment banks.

The results of the models testing whether the size of the affiliated commercial bank is important in determining the effect of banking crisis on CEF discounts are presented in columns (9) and (12) of Table 5 with weekly and monthly observations, respectively. The significance of the coefficients of *BCBANK* and *SCBANK* are not affected by the inclusion of interaction terms in the model. These coefficients are both negative and significant, indicating that big- and small-commercial bank-affiliated funds trade at a lower discount than unaffiliated funds. Similarly, investment bank-affiliated funds are found to trade at a lower discount than unaffiliated funds when interaction variables are included in the model. There is a significant increase in the discounts of all bank-affiliated CEFs regardless of the type or size of the affiliated bank, during the banking crisis, controlling for CEF characteristics and market conditions in estimations with weekly observations. Whereas the discounts on only small commercial and investment bank-affiliated funds increase significantly during the banking crisis period in estimations with monthly observations. However, no significant change in discounts on big commercial bank-affiliated funds is observed during the banking crisis with monthly observations. When the equality of the change in discounts for different bank-affiliated funds during the crisis is tested, no significant difference is found between the delta coefficients.

The Wald test on the summed coefficients for *IBANK* and *IBANK* × *CRISIS* ($\beta_{IBANK} + \delta_{IBANK}$), and *BCBANK* and *BCBANK* × *CRISIS* ($\beta_{BCBANK} + \delta_{BCBANK}$) show that discounts on investment bank- and big commercial bank-affiliated funds are not any different than that on unaffiliated funds during the banking crisis period. However, the sum of the coefficients for *SCBANK* and *SCBANK* × *CRISIS* ($\beta_{SCBANK} + \delta_{SCBANK}$) is 1.6692 (5.4654) and statistically significantly different from zero in estimations with weekly (monthly) observations. These results indicate that while investment and big commercial bank-affiliated CEFs trade at similar discounts as nonbank-affiliated CEFs, small commercial bank-affiliated CEFs trade at a higher discount than nonbank-affiliated CEFs during the crisis. Although the funds affiliated with big commercial banks sell at a significantly lower discount for the whole sample period, this difference disappears during the crisis period.

In summary, CEFs affiliated with big commercial banks trade at a significantly lower discount than CEFs affiliated with small commercial banks or investment banks during the sample period analyzed in this paper. Furthermore, discounts on small commercial bank- and investment bank-affiliated funds increase during the banking crisis significantly more than that on unaffiliated funds. Interestingly, the banking crisis did not affect the size of discounts on funds affiliated with different bank types statistically differently. Nevertheless, the size of the discount only on small commercial bank-affiliated funds is significantly larger than the size of the discount on nonbank-affiliated funds during the crisis period. This finding suggests that the failure of several small commercial banks during the banking crisis reduced the endowed trust premium on small commercial bank-affiliated CEFs more than that on those affiliated with large commercial banks.

4.5. Robustness checks

Increasing regulation of the financial markets and institutions has always been the response to the financial crisis. During the financial crisis period analyzed in this paper, there were several changes in the regulatory environment of banks in Turkey. The Banking Sector Restructuring Program aimed at "...restructuring the state-owned banks, resolution of the banks transferred to the Savings Deposit Insurance Fund, rehabilitating the private banking system, strengthening the regulation and supervision ..." of banks was announced on May 15, 2001 (BRSA, 2009). The main goal of this program is to create an internationally competitive banking system that is resilient to internal and external shocks. To achieve this goal, the regulation and supervision of the banking system are transferred to the Banking Regulation and Supervision Agency (BRSA), an independent regulatory authority established in 1999 but became operational in September 2000. Furthermore, BRSA became responsible for operations of the Savings Deposit Insurance Fund (SDIF), operating under the supervision of the Central Bank of Turkey until then (Yay & Yay, 2012). All of these are significant structural changes in the regulation and supervision of the Turkish banking system.

Turkey uses the civil law system with weaker investor protection, fewer mandatory disclosure requirements, lower minority rights, and less private enforcement than the common law system (La Porta, Lopez-De-Silanes, & Shleifer, 2006). McLean, Zhang, and Zhao (2012) estimate a liability measure for countries, indicating how easy it is for investors to pursue an issuer, its directors, distributors, or accountants in civil court in case of suffering losses because of misleading statements. Turkey has a measure of 0.22, less than the average measure for 44 developed and developing countries (0.713), and for 21 countries with civil law system (0.39) (La Porta et al., 2006). The low liability measure indicates that investors are not well protected from misconduct in Turkey.

To account for the effect of changes in the regulatory environment of commercial banks as well as weaker investor protection on our findings, we add Rule of Law or Regulation Quality from World Bank Governance Indicators to our base model. With these variables, we hope to control for general regulation/governance conditions in Turkey. In these augmented models, the relationship between the bank type indicator variables and CEF discounts remained qualitatively the same. As a result, we concluded that the lower discounts on the commercial bank and large commercial bank-affiliated CEFs are not because of the changes in the regulatory/governance environment of Turkey.²²

To analyze the effect of affiliated commercial bank quality on CEF discounts, we include some bank characteristics, namely Z-score, non-performing loans, and market share separately because of the high correlation between these variables, as additional explanatory variables in our base model. Even though some of these variables have significant coefficients in some models, the relationship between the bank type indicator variables and CEF discounts is not affected from the inclusion of any one of these variables in our models. As a result, we concluded that the lower discounts on the commercial bank and large commercial bank-affiliated CEFs are not only due to the financial quality of these banks but also due to the higher trust in these commercial banks.

As discussed in Section 3.2, identification of a crisis period is not an easy task. To see the effect of our crisis period definition on our findings, following Laeven and Valencia (2018), a new CRISIS variable is defined by extending the crisis period till the end of 2001, and the models are re-estimated by using this new crisis period definition. Laeven and Valencia (2018) state that the Turkey experienced a twin crises – banking and currency during 2000 and 2001. The estimated coefficients confirm the

previous findings. The bank-affiliated CEFs sell at a significantly lower discount than the unaffiliated funds. During the banking crisis, there is a significant increase in the size of discounts on bank-affiliated CEFs in almost all estimations. Moreover, it is observed that during the crisis not only funds affiliated with small commercial banks but also those affiliated with investment banks (model 2c) sell at significantly higher discounts than unaffiliated funds with weekly observations. Furthermore, during the banking crisis, the bank-affiliated funds (Model 2a) (with weekly and monthly observations) and commercial bank-affiliated funds (Model 2b) (with weekly observations only) sell at significantly higher discounts than unaffiliated funds.

Finally, the most volatile fund, Avrasya Fund, is excluded from the sample because of the price manipulation judgments on the lawsuits about this fund during our sample period. It is a nonbank-affiliated fund, and its discount changed between a premium of 1450.12 and a discount of 51.18 over the sample period. When this fund is excluded from the sample, it is found that not only funds that are affiliated with commercial banks but also funds affiliated with investment banks sell at significantly lower discounts than the funds that are not affiliated with any bank in all of the models. However, the coefficient of the interaction variable between bank affiliation and crisis becomes insignificant (Model 2a) with the exclusion of the manipulated fund from the sample when using weekly observations. Consistent with the loss of trust hypothesis, the discounts on CEFs affiliated with commercial banks (Model 2b), especially those affiliated with small commercial banks (Model 2c) are found to increase more than the discounts on unaffiliated funds during the banking crisis.

5. Conclusions

This paper examines the discounts on bank-affiliated and unaffiliated CEFs in an emerging market, namely the Borsa Istanbul. It is found that the bank (commercial and investment)-affiliated CEFs trade at significantly lower discounts than unaffiliated CEFs during the sample period. Further analysis indicates that the lower discount on the bank (commercial or investment)-affiliated CEFs is due to the lower discount on commercial bank-affiliated CEFs. Furthermore, big commercial bank-affiliated CEFs trade at significantly lower discounts than small commercial bank-, investment bank- and nonbank-affiliated CEFs. These findings can be interpreted as additional and new evidence for the uniqueness of commercial banks. Consistent with arguments in Puri (1999), commercial bank-affiliated CEFs seem to be perceived as of higher quality by the investors or trusted more than other financial institutions in this emerging market. As a result, investors are willing to pay higher prices, i.e., a trust or a quality premium, to invest in portfolios managed by commercial, and especially big commercial bank-affiliated CEFs.

The local banking crisis affects the discounts on all bank-affiliated CEFs adversely, causing them to trade at higher discounts. This result provides supporting evidence for the argument that a decline in trust in banks during the financial crisis eliminates the endowed trust premium paid by investors to hold portfolios managed by bank-affiliated CEFs during this period. Investment bank- and small commercial bank-affiliated CEFs are affected similarly by this banking crisis. However, consistent with the 'flight to quality' argument and mainly small commercial bank failures during the crisis, discounts on big commercial bank-affiliated CEFs increase less than that on investment bank- and small commercial bank-affiliated CEFs. Due to the decline in their trust premiums, CEFs affiliated with big commercial and investment banks trade at similar discounts as those that are not affiliated with banks. On the other hand, CEFs affiliated with small commercial banks trade at significantly higher discounts than unaffiliated ones during the crisis period. Overall, our analysis indicates that not only the type but also the size of the affiliated bank affect discounts on their CEFs.

In a country with weaker investor protection, fewer mandatory disclosure requirements, lower minority rights, and less private

²² Since our main findings in all robustness checks are qualitatively the same as the findings from our main models, estimations based on the robustness checks are not reported in the paper to conserve space. However, they are available from authors upon request.

enforcement, commercial bank-affiliated financial institutions might garner higher trust from investors because of stricter regulations their parent organization have to adhere to. However, the robustness checks conducted in this paper seem to indicate that loose regulatory environment of Turkey is not the only explanation and the trust in parent banks seemed to play an important role in determining the discounts on affiliated CEFs.

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Data availability

Data will be made available on request.

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