



Relationship between Loans and Export in Turkey: Comparative Analysis of Islamic and Conventional Banks

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ABSTRACT

Financial flows have a potential to influence the economic activity and exports. In this study, causality relationships between both total loans and medium-long term loans and exports were investigated by the Toda-Yamamoto method for various exporting manufacturing industries in Turkey for the period 2006-2019. Although the share of funds directed to the real sector and production is low for Islamic banks, the loans supplied by Islamic banks have a stronger causal effect on exports compared to conventional banks.

Keywords: Islamic Banking, Loans, Export, Manufacturing Industry, Turkish Banking System

JEL Classification: G20, G21, E44

Türkiye’de Kredi ve İhracat Arasındaki İlişki: İslami ve Konvansiyonel Bankaların Karşılaştırmalı Analizi

ÖZ

Finansal akımlar, ekonomik faaliyetleri ve ihracatı etkileme potansiyeline sahiptir. Bu çalışmada, 2006-2019 dönemi için hem toplam hem de orta-uzun vadeli krediler ile ihracat arasındaki nedensellik ilişkileri birçok ihracatçı imalat sanayi sektörü için Toda-Yamamoto yöntemiyle araştırılmıştır. Üretime ve reel sektöre aktarılan fonların payı İslami bankalar için düşük olmasına rağmen, konvansiyonel bankalara kıyasla İslami banka kredilerinin ihracat üzerinde daha güçlü bir nedensel etkisi vardır.

Anahtar Kelimeler: İslami Bankacılık, Banka Kredileri, İhracat, İmalat Sanayi, Türk Bankacılık Sistemi

JEL Sınıflandırması: G20, G21, E44

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1. INTRODUCTION

Firms' production and sales decisions are determined by various parameters including financing. Export is one of the firm activities that can be affected by the funds transferred from the financial system.

Since all firms are not the same in terms of their dependence on external finance, binding financial constraints, access to finance and markets, funds transferred from the financial system may not have the same impact on all firms. This differentiation may also be reflected in the sectors in which these firms are operating. The type of bank transferring funds is another factor that determines the impact of the transfer of funds.

Islamic banks operate under additional constraints arising from the title of being Islamic compared to conventional banks. These constraints can have additional effects on the real sector¹. Today, Murabaha is the most widely used method among Islamic banking funding types. In this method, the goods or services needed by the client are purchased by the bank and sold to the client with a certain dividend over the cash purchase price. Another commonly used funding method is Profit and Loss Sharing (PLS), where the bank client and the bank establish a partnership on an activity. The transfer of funds with these methods in Islamic banking is based on the following principles: being interest-free, partnership, risk-sharing, and avoiding credit and debt products.

Within the framework of these principles, the funds transferred by Islamic banks are expected to affect the exports of companies through their effects on the real sector.² Therefore, the effect of Islamic Banking fund transfers on exports can be much stronger compared to conventional banking. In this study the effects of loans supplied to the real sector on exports are analyzed by comparing Islamic and conventional banking.

In the first section, the banking loans to the manufacturing industry and its eight sub-industries, which are leading exporters, are analyzed by Toda Yamamoto causality analysis method with a monthly data for the period of 2006-2019. The second section portrays the export characteristics of the manufacturing sector in the Turkish economy. In the third section, the general view of the Turkish banking system and the funds transferred to the manufacturing industry are described. While data and methodology are presented in the fourth section, empirical analysis is made in the following section. In the last part, the findings are discussed.

2. MAIN FEATURES OF TURKISH EXPORTS

Turkey has a chronic trade deficit. Having a high proportion of exports of low value-added products and Turkey's exports that show an increase³ over time in the proportion of imported inputs are important factors in making this chronic deficit.

¹ For more information on how the Islamic banking can have additional impacts on the real sector compared to the conventional banking, see: Ergeç, 2019, pp. 81-86.

² 2019 report of Participation Banks Association of Turkey emphasises that Islamic banks play an important role in the increase of production and employment by financing investment goods with favorable conditions to many small and medium-sized enterprises that cannot obtain sufficient funds from the financial system. Moreover, it is stated that Islamic banks support foreign trade by directing some of their resources to the financing of exchange earning services like exports (p.60).

³ Studies on Turkey's import composition of exports present different findings. According to OECD, Turkish import content of exports is around 17%. (<https://data.oecd.org/trade/import-content-of-exports.htm#indicator-chart>, accessed: June 18, 2020). However, by using macro data, Erduman et al. 2019 and Ozcan-Tok and Sevinç 2019 find that the ratio of imports in the exports is about 31% in 2012. On the other hand, by using micro data taking into account the supply networks of exporters, Akgündüz & Fendoğlu (2019) finds this ratio to be around 45%. Although

Except for the crisis periods, the foreign trade deficit cannot be balanced with the surpluses of the services balance sheet. Thus, Turkish economy in the long term is exposed to a high current account deficit problem. Since these deficits are generally financed by short-term capital flows, the fragility of the economy increases.

At the end of 2019, Turkey's total exports were 171 billion dollars, while total imports amounted to 202 billion dollars. Manufacturing industry exports constitute 94% of the total exports in 2019. The share of the major exporting manufacturing sub-industries in the total exports of 2019 is given in Figure 1. When the ratios in the chart are analyzed, it is seen that the transportation vehicles sector has the highest share in total exports. The textile and clothing sector has the second-highest share.

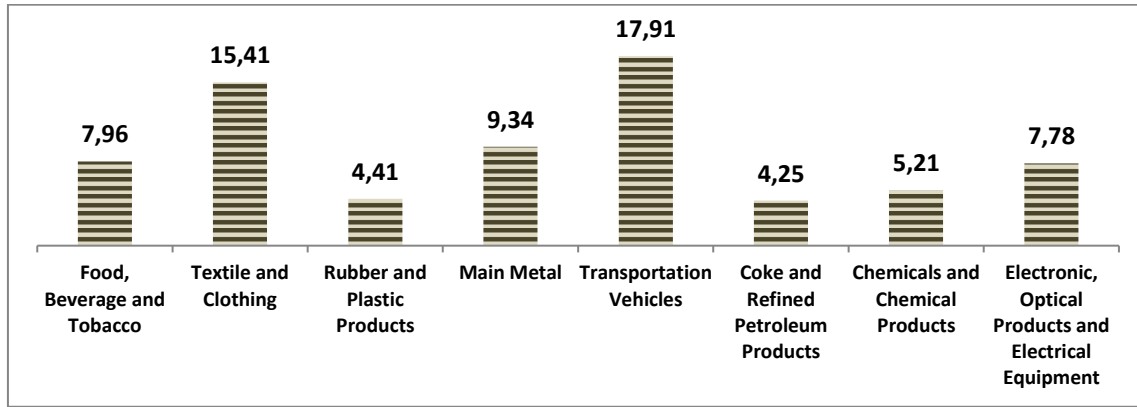


Figure 1: Shares of Manufacturing Industries in Turkish Total Export (2019, %)

Source: Turkish Statistical Institute, Electronic Database (Accessed: August 12, 2020).

3. OVERVIEW OF THE TURKISH BANKING SECTOR

In Turkey, according to the Banking Law No. 5411, banks consist of deposit banks, participation banks⁴, and development and investment banks. While deposit banks cannot accept participation funds and lease transactions; participation banks cannot accept deposits, on the other hand, development and investment banks cannot engage in activities of accepting deposit and participation funds.

In Turkey as of March 2020, 54 banks were active. Of this number, 34 are deposit banks, 14 are development and investment banks, and 6 are Islamic banks. Market shares of the banking groups operating in Turkey are given in Table 1. In December 2019, the share of assets of deposit (conventional) banks in the banking sector was 87%, that of development and investment banks was 7%, and that of participation (Islamic) banks was 6%.

this rate does not differ much from the world average, the dependency on imported inputs was higher in capital and technology-intensive sectors compared to labor-intensive sectors for Turkey and input intensity of exports has an increasing trend over time. (Erduman et al., 2019; Özcan-Tok & Sevinç, 2019).

⁴ In Turkey, Islamic banks and conventional banks are named as participation banks and deposit banks respectively. In the rest of the paper, we will be using the names Islamic bank and conventional bank.

Table 1: Sectoral Shares of Banking Groups in Turkish Banking System (2019, %)

	Total Actives	Total Loans	Total Deposits
Deposit Banks	87	87	92
Development and Investment Banks	7	8	0
Islamic Banks	6	5	8
Total (%)	100	100	100

Source: The Banks 2019 (The Banks Association of Turkey, 2020)

3.1. Islamic Banking in Turkey

In Turkey, as in the World, Islamic banking has displayed a high growth performance over the last two decades and has increased its market share. Today banks are the predominant financial intermediaries in Islamic finance which more than 1,400 intermediaries operate in 80 countries, including Turkey. Figure 2 shows the growth performance of Islamic banking in Turkey. The chart shows the shares of Islamic banks in terms of loan, deposit and asset size in the Turkish banking system in 2006 and 2019. When these ratios are examined, it is understood that Islamic banking has a better growth performance compared to deposit banks.

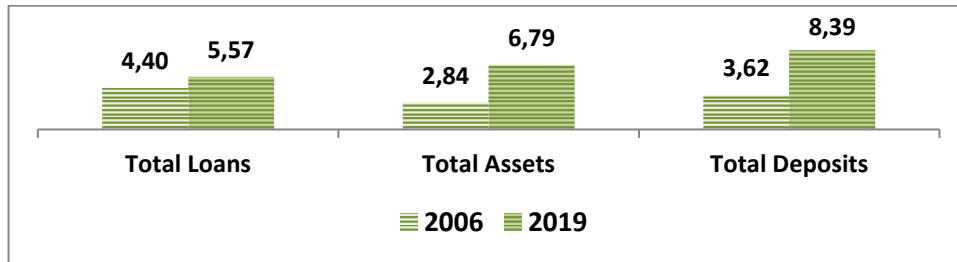


Figure 2: The Place of Islamic Banking in the Turkish Banking Sector (2006-2019, %)

Source: Banking Regulation and Supervision of Agency (BRSA), (Accessed: August 12, 2020).

3.2. Loans to Manufacturing Industry in Turkey

When the shares of Loans supply to manufacturing industry in total loans are compared in the context of conventional banking and Islamic banking, it is seen that the share of loans extended to the manufacturing industry is higher in Islamic banking. In the end of 2019, while this share was %29,04 in Islamic banking, in conventional banking it was just %17,02.

However, comparing the tendency of lending to sub-industries of the manufacturing industry in the two banking systems is important in terms of giving an idea about the preferences of banking and sectors. For this purpose, the share of the loans transferred to sub-industries in total loans extended to the manufacturing industry is shown in Figure 3 for the two banking systems comparatively. In the main metal and textile and textile products industries, the ratio of loans to the sectors is higher in Islamic banking compared to conventional, while it is lower for the food, beverage and tobacco, chemical and transportation vehicles industries.

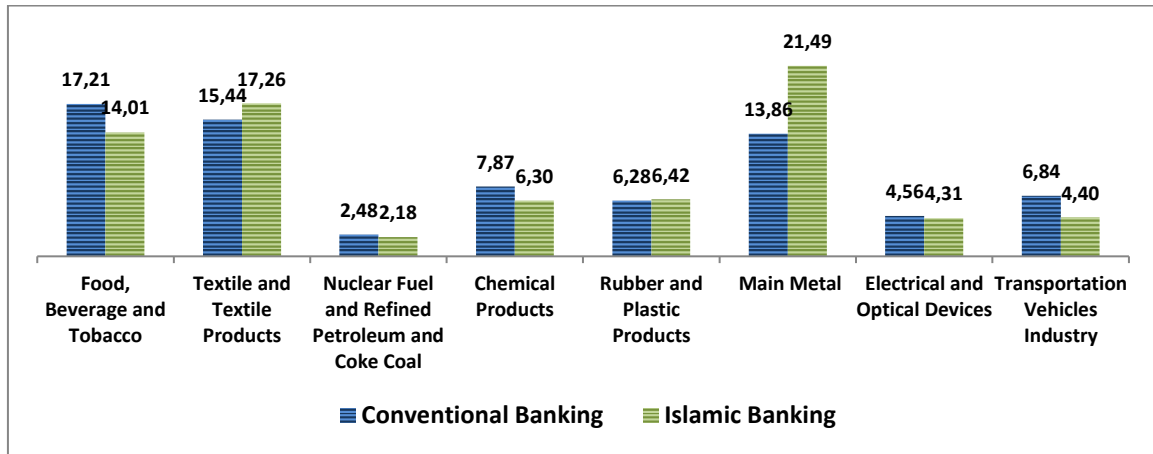


Figure 3: Types of Loans in Total Loans to Manufacturing Industry (2019, %)

Source: BRSA, (Accessed: August 12, 2020)

The same phenomenon can be seen in the comparison of the share of Islamic banking in total loans and loans to manufacturing sub-industries. Figure 4 gives the share of some loans supplied by Islamic banks in the Turkish banking system. When Figure 4 is analyzed, it is seen that the share of loans extended by Islamic banks in all sectors is higher than the share of total loans granted. This shows that Islamic banks are more supportive of the real sector in funding.

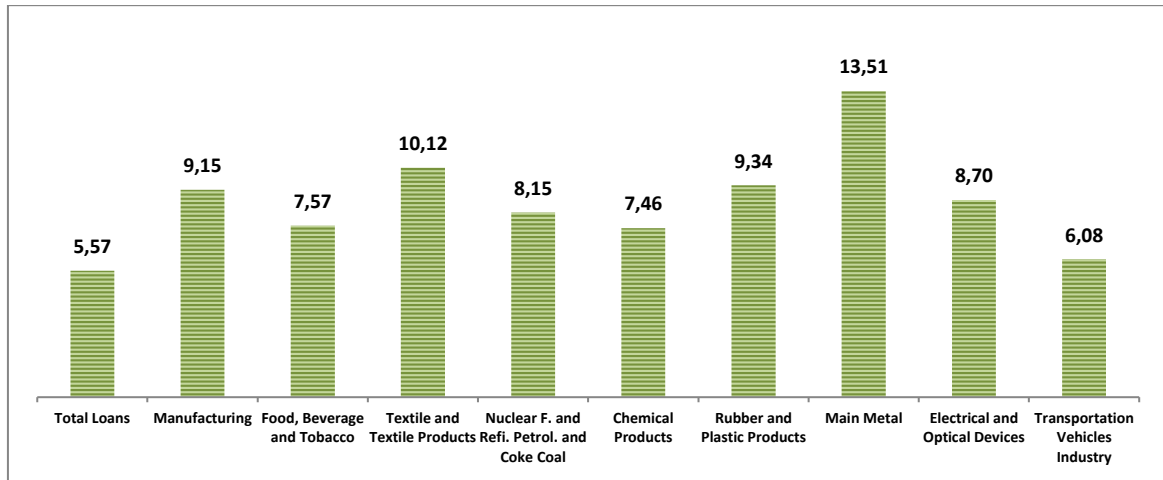


Figure 4: Share of Islamic Banking Loans in Turkish Banking System (2019,%)

Source: BRSA, (Accessed: August 12, 2020).

The share of medium- and long-term loans in sectoral loans is shown in Figure 5 for two banking types. When compared in terms of loans, it is seen that the two types of banking differ from each other in terms of sectors. While the share of medium- and long-term loans is higher in Islamic banking in sectors such as transportation vehicles, main metal and textile and textile products, it is higher in conventional banking in food, beverage and tobacco, and chemical product sectors.

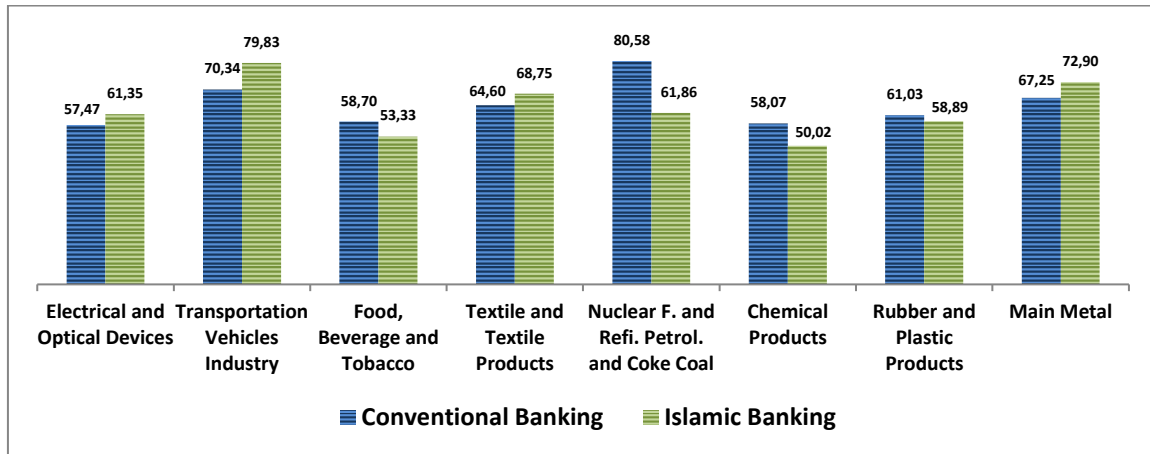


Figure 5: Share of Medium- and Long-Term Loans in Total Loans (2019, %)

Source: BRSA, (Accessed: August 12, 2020).

4. LITERATURE REVIEW

The effects of funds transferred from the financial system on the economy are a topic that has been frequently emphasized in the economic literature in the context of the relationship between financial development and economic growth (King & Levine, 1993; Rajan & Zingales, 1998; Beck et al., 2000; Levine et al., 2000). The general basis of these studies in the literature is that by making the fund transfer process more efficient, the production opportunities in the economy will be increased. Of course, this positive effect will also affect the export opportunities of an open economy. However, studies are emphasizing that some exporting companies may be more positively affected by this process. The work of Kletzer & Bardhan (1987) is one of the first examples of these studies. The study emphasizes that financial development gives countries a comparative advantage in industries with a greater need for external financing. Other studies in the literature have researched why exports can be more strongly affected by financial development (Beck, 2000 & 2002; Becker & Greenberg, 2003; Du & Girma, 2007; Becker et al., 2013; Fauceglia, 2015; Kumarasamy & Singh, 2018; Choi, 2020).

In a study examining whether financial development has turned into a higher rate of comparative advantage for sectors with high external finance dependence, Beck (2000) analyzed sector-level data on firms' dependence on external finance for 36 industries from 56 countries. In the study, it has been concluded that industries that rely more on external financing have higher export shares in economies with more developed financial systems.

In another study, in which he examined the relationship between financial development and international trade, Beck (2002) analyzed the manufacturing industries of 65 countries between 1966 and 1995 with panel data. In the study, it was concluded that economies with more developed financial markets have a comparative advantage in manufacturing industries and financial development has a causal effect on both the level of exports and trade balance. Becker & Greenberg (2003) analyzed the relationship between trade data of sectors and financial development in 100 countries for the period 1970-1997 with the panel OLS method and concluded that financial development positively affected exports. In countries and sectors where access to foreign finance is difficult, finance matters more. The study defines international trade as a channel through which financial development affects economic performance.

Du and Girma (2007) analyzed the relationship between access to finance, foreign direct investment and exports of domestic firms in their study, where they examined more than 28000

private equity enterprises in China. Especially in labor-intensive industries, it is concluded that companies' access to bank loans is related to the export market orientation.

Becker et al. (2013) examined bilateral foreign trade flows for 100 countries annually and on an industry basis in the 1963-2000 period by panel regression. Similar results to Becker & Greenberg (2003) have been reached. In the study, the potential for financial development to increase exports is emphasized.

Fauceglia (2015) examines whether financial development reduces the impact of credit constraints on the exporting decision by using firm-level data across 17 countries. The results confirm that the positive effect of a firm's liquidity on the exporting probability is larger for firms located in financially less developed countries. This finding highlights the importance of financial development in reducing credit constraints. The empirical results also suggest that financing obstacles and the benefits from better access to finance are particularly high for firms belonging to innovative sectors and the ones dependent on external finance.

Kumarasamy and Singh (2018) analyzed the data of firms in 16 countries for the period 2002-2006 with panel regression and examined how firms' access to finance and financial development affect firms' entry into export markets. The results show that the development of the financial sector positively affects the entry into the export market, access to finance and financial development facilitates the entry of firms into export markets.

Choi, B. (2020) discussed whether the benefits of financial development are evenly distributed across industries. The results of the study show that companies are affected differently from financial development, depending on asset tangibility. In the study, exports for 140 countries and 25 manufacturing sectors from 10 countries for asset tangibility country and industry-data were analyzed by panel OLS for the period 1987-2006. The results show that industries with more tangible assets export more than countries with higher financial development levels.

In the literature, some studies have determined that exports are affected by the financial system, although they do not analyze their causes. The works of Anagaw & Demissie (2012) for Ethiopia and Shahbaz & Rahman (2014) for Pakistan are examples of these studies.

There are also studies in the literature that could not determine the impact of financial development on exports. Agosin et al. (2012) 's study is one of the studies that concluded that the impact of financial development on exports is limited. In this study, it is concluded that exports affected by trade openness but not financial development.

Studies examining the effects of the development of Islamic finance on the economy are relatively limited compared to conventional finance. However, these studies are generally conclude that they affect economic growth positively (Furqani & Mulyany, 2009; Abduh & Chowdhury, 2012; Tabash & Dhankar, 2014; Imam & Kpodar, 2016; Tunay, 2016; Jawad & Christian, 2019; Asutay & Ergec, 2013; Jobarteh & Ergec, 2017, Atici, 2018).

However the number of studies examining how Islamic finance affects foreign trade is much more limited. One of these, Abidin & Hasseb (2018), analyzed how Islamic finance indicators and macroeconomic variables affect bilateral trade between Malaysia and GCC countries for the period 1990-2017 using a panel time series. In the study, it is concluded that Islamic finance positively affects trade. However, this result is likely to be related to the trade with the GCC countries rather than the characteristics of Islamic finance.

Detailed examination of the interaction between Islamic banking and the real sector is important to understand the causes and consequences of the development of this banking model. Export is an important output of the real sector. For this reason, the study attempts to

comparatively analyze Islamic and conventional banking by examining the relationship between the bank loans used by the sectors and their exports.

5. DATA AND METHODOLOGY

In this study, the causality relationship between banking funds and exports for the period 2006-2019 was examined by using monthly data. As the variables, we use the exports of the manufacturing industry and its eight sub-industries and the loans supplied to these industries. Exports data were obtained from the Turkish Statistical Institute (TURKSTAT), and loans were obtained from BRSA. The export levels are in US dollars; the effect of inflation on credit volume (in Turkish Lira) was eliminated by using consumer price index (CPI). All variables are seasonally adjusted and included in the analysis with their logarithmic form. The variables used in the analysis are presented in Table 2.

Table 2: List of Variables

Export of Sectors	
EM	Manufacturing
E1	Manufacture of Food Products, Beverages and Tobacco Products
E2	Manufacture of Textiles and Wearing Apparel
E3	Manufacture of Coke and Refined Petroleum Products
E4	Manufacture of Main Metals
E5	Manufacture of Rubber and Plastics Products
E6	Manufacture of Chemicals and Chemical Products
E7	Manufacture of Motor Vehicles Trailers and Semi-Trailers and Other Transport Equ.
E8	Manufacture of Computer Electronic and Optical Products and Electrical Equipment
Sectoral Loans of Banking	
CM	Loans to Manufacturing Ind. of Conventional Banking
IM	Loans to Manufacturing Ind. of Islamic Banking
C1	Loans to Food, Beverage and Tobacco Ind. of Conventional Banking
I1	Loans to Food, Beverage and Tobacco Ind. of Islamic Banking
C2	Loans to Textile and Textile Products Ind. of Conventional Banking
I2	Loans to Textile and Textile Products Ind. of Islamic Banking
C3	Loans to Nuclear Fuel and Refined Petroleum and Coke Coal Ind. of Conventional Banking
I3	Loans to Nuclear Fuel and Refined Petroleum and Coke Coal Ind. of Islamic Banking
C4	Loans to Chemical Products Ind. of Conventional Banking
I4	Loans to Chemical Products Ind. of Islamic Banking
C5	Loans to Main Metal Industry of Conventional Banking
I5	Loans to Main Metal Industry of Islamic Banking
C6	Loans to Electrical and Optical Devices Ind. of Conventional Banking
I6	Loans to Electrical and Optical Devices Ind. of Islamic Banking
C7	Loans to Transportation Vehicles Industry of Conventional Banking
I7	Loans to Transportation Vehicles Industry of Islamic Banking
C8	Loans to Rubber and Plastic Products Ind. of Conventional Banking
I8	Loans to Rubber and Plastic Products Ind. of Islamic Banking
Sectoral Medium- and Long-Term Banking Loans	
CML	Loans to Manufacturing Ind. of Conventional Banking
IML	Loans to Manufacturing Ind. of Islamic Banking
C1L	Loans to Main Metal Industry of Conventional Banking
I1L	Loans to Main Metal Industry of Islamic Banking
C2L	Loans to Textile and Textile Products Ind. of Conventional Banking
I2L	Loans to Textile and Textile Products Ind. of Islamic Banking
C3L	Loans to Transportation Vehicles Industry of Conventional Banking
I3L	Loans to Transportation Vehicles Industry of Islamic Banking
C4L	Loans to Food, Beverage and Tobacco Ind. of Conventional Banking
I4L	Loans to Food, Beverage and Tobacco Ind. of Islamic Banking

Although causality analysis does not give an idea about the intensity of the effects between the variables, it is an important analysis method in responding to whether the variables are among the causes or not. The Toda-Yamamoto method, which is frequently used in the literature, was preferred for the analysis of causality relationships in this study. For the causality test developed by Granger (1969) variables need to be stationary. On the other hand, for Toda-Yamamoto (1995) analysis the variables do not need to be stationary i.e. the non-stationarity and cointegration relationship of the variables do not affect the results of the analysis. This method has the advantage of being used in the analysis of causality relationships since it does not require the same level of stability.

To use Toda and Yamamoto (1995) causality method, a VAR model with the k+dmax lag structure is estimated variables’ levels and then Modified Wald Test (MWALD) is applied. Hence as the first step, k and dmax should be determined which are the optimal time lag chosen by using information criteria of the VAR model and the maximum integration order on variables system respectively. A representative VAR model equations to analyse the Granger causality between a Loans Variable (Loans) and an Industrial Production Index (Export) is presented below. The significance of the causal relationship depends on the significance of the coefficients of these equations.

$$Export_t = \gamma_0 + \sum_{i=1}^k \alpha_i Export_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_j Export_{t-j} + \sum_{i=1}^{k+d_{max}} \beta_i Loans_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_j Loans_{t-j} + \varepsilon_{1t}$$

$$Loans_t = \gamma_0 + \sum_{i=1}^k \delta_i Loans_{t-i} + \sum_{j=k+1}^{k+d_{max}} \delta_j Loans_{t-j} + \sum_{i=1}^{k+d_{max}} \theta_i Export_{t-i} + \sum_{j=k+1}^{k+d_{max}} \theta_j Export_{t-j} + \varepsilon_{2t}$$

6. EMPIRICAL RESULTS

In order to determine the optimum delay in the Toda-Yamamoto method, it is necessary to know the highest stationarity degrees of the series. The test results of the augmented Dickey-Fuller stationary test are given in Table 3. Three Exports variables, two Loans variables of conventional banking and two Loans variables of Islamic Banking are stationary at the level. The other variables are stationary at the first difference.

Table 3: Augmented Dickey-Fuller (ADF) Stationary Test Results

	Level			First Dif.		
	T of Deter.	t stat.	Prob.	T of Deter.	t stat.	Prob.
EM	C+T	-3.39	0.06	None	-24.38	0.000
E1	C+T	-2.29	0.44	None	-26.85	0.000
E2	C	-2.10	0.24	None	-15.51	0.000
E3	C	-3.35	0.01	None	-20.10	0.000
E4	C	-4.95	0.00	None	-15.83	0.000
E5	C+T	-2.83	0.19	C	-14.33	0.000
E6	C+T	-2.73	0.23	C	-24.58	0.000
E7	C+T	-2.84	0.19	None	-22.01	0.000
E8	C+T	-3.62	0.03	None	-14.54	0.000
IM	C+T	-2.96	0.15	C+T	-10.12	0.000
CM	C+T	-3.39	0.06	None	-24.38	0.000
C1	C	-2.39	0.15	C	-15.38	0.000
I1	C	-2.15	0.23	C	-12.43	0.000
C2	None	2.04	0.99	None	-12.97	0.000
I2	C	-2.46	0.13	C	-9.25	0.000

C3	C	-3.15	0.03	None	-18.41	0.000
I3	C	-2.33	0.16	None	-18.88	0.000
C4	C+T	-2.25	0.46	C	-12.36	0.000
I4	None	2.12	0.99	None	-15.96	0.000
C5	C+T	-3.17	0.09	C+T	-14.04	0.000
I5	C+T	-3.10	0.11	C	-12.34	0.000
C6	C+T	-3.01	0.13	C	-20.49	0.000
C6	C	-3.12	0.03	C	-13.64	0.000
C7	C+T	-4.32	0.00	C	-13.10	0.000
I7	C	-1.83	0.37	C	-12.96	0.000
C8	C	-2.50	0.12	C	-12.53	0.000
I8	C+T	-4.09	0.01	C	-9.98	0.000

Information criteria were taken into account for the lag length needed for the analysis. The results of the causality tests regarding loans and export of the industry are given in Table 4. Stability levels and lag length levels were taken into account in causality tests.

Table 4: The Results of Toda-Yamamoto Causality (Modified WALD) Tests for Banking Loans

Industry	Banking Type	Loans Cause Export			Export Cause Loans		
		Chi-sq	df	Prob.	Chi-sq	df	Prob.
Manufacturing Ind.	CB	6.51	2	0.04	9.56	2	0,008
	IB	5.47	2	0.07	0.22	2	0,894
Food, Beverage and Tobacco	CB	0.22	4	0.99	14.64	4	0,006
	IB	0.71	2	0.70	1.36	2	0,507
Textile and Clothing	CB	2.22	2	0.33	9.23	2	0,010
	IB	3.85	2	0.15	2.52	2	0,284
Coke and Refined Petroleum Products	CB	2.40	2	0.30	5.47	2	0,065
	IB	5.52	6	0.48	11.76	6	0,067
Main Metal	CB	4.17	1	0.04	1.84	1	0,175
	IB	2.04	1	0.15	1.37	1	0,243
Rubber and Plastic Products	CB	2.55	13	0.02	1.75	13	0,176
	IB	28.55	13	0.01	1.36	13	0,405
Transportation Vehicles	CB	9.85	6	0.13	18.64	6	0,005
	IB	1.00	2	0.61	0.31	2	0,857
Chemicals and Chemical Products	CB	0.23	2	0.89	11.43	2	0,003
	IB	0.36	2	0.84	0.37	2	0,830
Electronic, Optical Products and Electrical Equipment	CB	0.42	2	0.81	1.19	2	0,553
	IB	5.96	2	0.05	3.25	2	0,008

Figure 6 has been prepared to summarizing the results given in the Table 4.

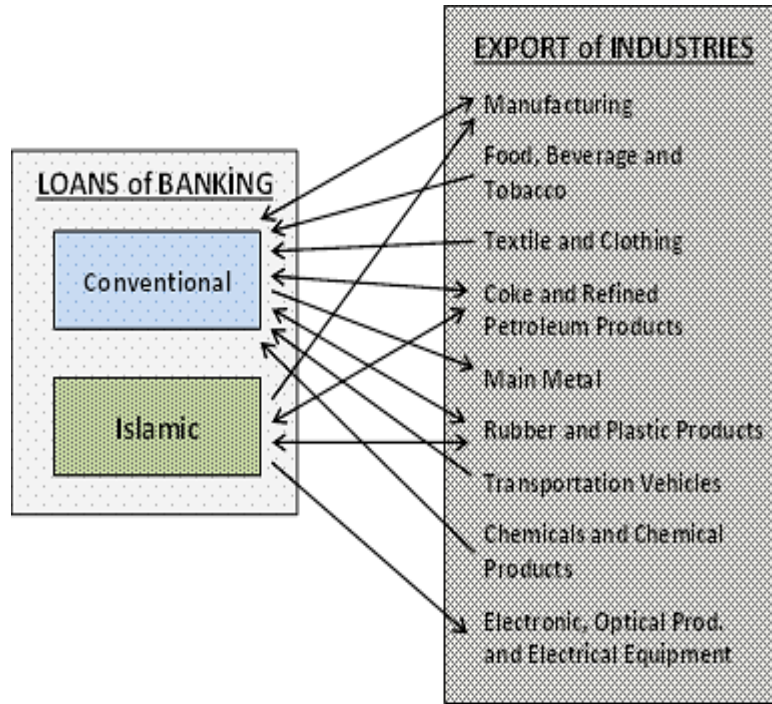


Figure 6: Causality Relationship Between Loans and Exports of Industry

The causality relationship between the loans by the two banking systems to the manufacturing industry and the export of the industry appeared to be statistically significant. However, while causality is bidirectional in conventional banking, in Islamic banking the direction is only from banking loans to the industry's exports.

While the causal relationship between conventional banking loans and exports was statistically significant for all sectors except electronic, optical products and electrical equipment industry, sub-industries that were found to be statistically significant for Islamic banking loans were the coke and refined petroleum products, rubber and plastic products and electronic, optical products and electrical equipment industries.

The causality relationships between conventional banking loans and exports of the industries are bidirectional for the three sectors. While only in the main metal industry the causality direction is from loans to exports, in others the direction is opposite.

When the direction of causality relationships in Islamic banking is evaluated, the direction of causality is from loans to export in the electronic, optical products and electrical equipment industry, while it is bidirectional in the other two sub-industries.

Based on the view that long-term loans may have stronger effects than short-term loans, similar causality analyzes have been repeated for medium and long-term loans for the manufacturing industry and its sub-industries with the most important export shares (main metal, textile and clothing, transportation vehicles food ve beverage and tobacco). Although the causality relationship between Islamic banking total loans and exports cannot be determined in these sectors, the reasons for the repetition of the analyzes for medium and long term loans are as follows: (i) the lending weight of Islamic banking is Higher than other sectors, (ii) high share of long-term loans in these sectors, and (iii) the shares of these sectors are high in total exports. The results of the stationary analysis needed for causality relationships are given in Table 5.

Table 5: Augmented Dickey-Fuller (ADF) Stationary Test Results

	Level			First Dif.		
	T of Deter.	t stat.	Prob.	T of Deter.	t stat.	Prob.
CML	C+T	-2.07	0.56	C	-12.42	0.000
IML	C+T	-4.26	0.01	C+T	-9.15	0.000
C1L	C+T	-2.84	0.19	C+T	-13.50	0.000
I1L	C+T	-4.01	0.01	C+T	-12.42	0.000
C2L	None	3.29	1.00	None	-11.51	0.000
I2L	C	-3.98	0.00	C	-8.91	0.000
C3L	C+T	-3.16	0.10	C	-12.73	0.000
I3L	C	-1.80	0.38	C	-10.82	0.000
C4L	C+T	-2.41	0.38	C	-13.08	0.000
I4L	C+T	-4.85	0.00	C	-10.97	0.000

Medium- and long-term banking loans from Islamic Banking to manufacturing, main metal, textile and textile products and food, beverage and tobacco industries are stationary at the level. All other banking variables are stationary at the first difference.

The results of the causality analysis between the medium- and long-term loans of two banking types and export of industries are given in Table 6.

Table 6: The Results of Toda-Yamamoto Causality (Modified WALD) Tests for Medium- and Long-Term Banking Loans

Industry	Banking Type	Loans Cause Export			Export Cause Loans		
		Chi-sq	df	Prob.	Chi-sq	df	Prob.
Manufacturing Ind.	CB	4.71	2	0.10	6.25	2	0.044
	IB	9.56	2	0.01	0.37	2	0.832
Main Metal	CB	0.24	1	0.63	1.37	1	0.242
	IB	4.83	2	0.09	2.06	2	0.357
Textile and Clothing	CB	1.33	2	0.52	8.15	2	0.017
	IB	2.23	2	0.33	0.27	2	0.872
Transportation Vehicles	CB	0.35	2	0.84	3.98	2	0.137
	IB	6.25	2	0.04	0.31	2	0.855
Food, Beverage and Tobacco	CB	1.61	2	0.45	6.05	2	0.049
	IB	7.01	2	0.03	2.07	2	0.355

Figure 7 has been prepared for summarizing the statistically significant results given in Table 6.

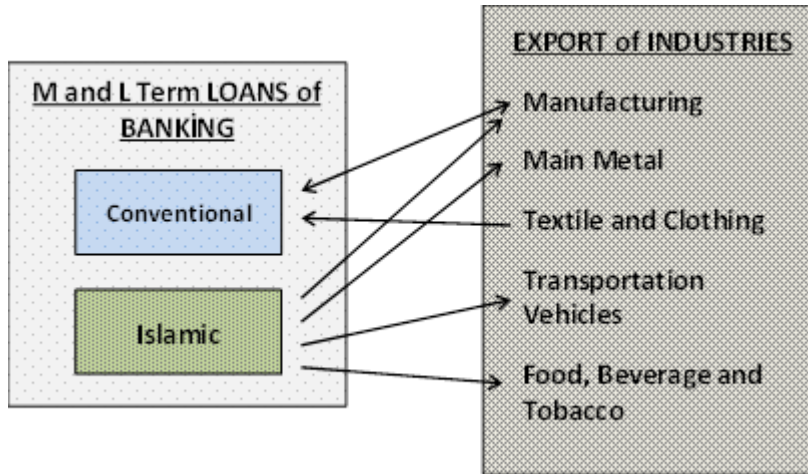


Figure 7: Causality Relationship between Medium- and Long-Term Loans and Exports of Industry

Between the medium and long-term loans to the manufacturing sub-industries and the exports of the manufacturing industry, the bidirectional causality relationship was found in conventional banking, whereas in Islamic banking, the one-way causality relationship from loans towards export was significant.

Although the four sub-industries were analyzed, the analysis result was statically significant only for the textile and clothing industry in conventional banking. The direction of causality in this sector is from export towards banking loans. Contrary to the total loans used by the industries, in Islamic banking, the causality relationship between medium and long-term funds and exports was not only significant for the textile and clothing sector, but also the other three sub-industries.

The direction of the statistically significant causality relationship between medium and long-term funds provided to the sectors and exports is from exports to bank funds in conventional banking, while in Islamic banking it is from bank to exports.

7. DISCUSSION

The use of imported inputs in capital-intensive and technology-intensive industries have increased over time in Turkey. This trend caused dependency of exports on imports and an increase in the current account deficit which in turn increases economic fragility in Turkey. In 2019, Turkey has \$31.2 billion foreign trade deficit and its share is 1% in the world exports which shows the need to improve exports.

The efficient functioning of the fund transfer process causes increases in investments and economic growth. The funds supplied by the banks to the real sector will be reflected in the exports of the firms due to their impact on production. Depending on their characteristics, the effect of supplied funds on firms' exports will be different from each other. Moreover, depending on the relative sizes of these firms compared to the size of the sector they are operating in, these effects will also be different for different sectors. Different than conventional banks, Islamic banks operate under additional Islamic constraints. Because of this reason, the effect of supplied funds on exports by Islamic banks can be different.

By supplying funds to many small and medium-sized enterprises that cannot receive sufficient financial support from the financial system, Islamic banks play an important role in the increase in production and employment. Moreover, by supplying funds to the foreign exchange earning service, Islamic banks also support the development of foreign trade.

In this study, the causality relationship between loans and exports of manufacturing industry and its eight sub-industries is analyzed by comparing Islamic and conventional banks. For the analysis, we use Toda-Yamamoto method and monthly data for the period 2006-2019.

Although many studies analyses the effects of Islamic and conventional banking on the real economy, the number of studies that show stronger effect for Islamic banking is quite limited. We think that relatively small share of Islamic banking in the banking system and the data constraints is the reason behind this situation. From this perspective, the results of this study are quite interesting. The number of statistically significant causality relationships between loans supplied by Islamic banks and exports is statistically more significant for medium- and long-term loans compared to conventional banks. Hence, despite its small share, Islamic banking has strong causal effects on Turkish exports.

The results of this study shows the importance of a developed Islamic banking sector in Turkey beause of its impact on increasing export and reducing foreign trade deficit. On the other hand, similar to other countries, PLS is not a common funding method of Islamic banks in Turkey. For a bigger impact of Islamic banks on exports and the economy, it is important to employ policies to promote PLS funding method.

Research and Publication Ethics Statement

This study has been prepared in accordance with the rules of scientific research and publication ethics.

Contribution Rates of Authors

The first author's 50%, the second author's 50%.

Conflicts of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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