

## Pain or Gain? The Impact of Sanctions on the Sustainability of Banks' Services

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**Abstract.** This paper examines the impact of financial sanctions on the sustainability of Syrian private banks' services. It illustrates how Syrian private banks sustained and adjusted their operations and services to counteract these sanctions and how these adjustments are reflected in their revenues and commission distribution. We test the equality of means of interest and commission components revenues for the full population of Syrian private banks for the period from 2011 to 2021. We find that the majority of Syrian private banks tailored their operations towards risky activities in response to sanctions. This was manifested in a significant increase in revenues from risky activities, particularly from loans and facilities. Similar behavior was documented for both traditional and Islamic banks in terms of services orientation. Sanctions increased Syrian private banks' appetite to take risks and forced them to reprice their services towards more commissions on less risky activities such as opening new accounts or cash withdrawals. To enhance banks' services sustainability, we recommend that Syrian private banks should provide innovative services and explore venues for diversifying their revenues, such as offering e-services and portfolio investing.

**Keywords:** sanctions; sustainability; bank services; innovation; Syrian Arab Republic.

## **1. Introduction**

Syria has been under international sanctions for many years, starting from 1979 when the United States (US) classified Syria as a State that sponsors terrorism. However, the majority of current US sanctions on Syria were imposed in two broad phases: a first phase in 2004 when the US policymakers claimed that Syria supported terrorist activities in Lebanon, and a second phase that started in 2011 when the civil war broke out in Syria. The European Union (EU) began to impose sanctions in 2011 and has escalated these sanctions in several stages since 2011. The United Nations has imposed a limited number of sanctions related to Syria, generally targeted at ISIS.

Since mid-2011, sanctions have been expanded to target the Syrian government and its institutions. Such expansion has affected the operations of the Syrian banking sector in two ways. First, the state-owned banks were isolated by the US, the EU, and other countries, along with international organizations. Then, two private banks, which are the Syrian International Islamic Bank (SIIB) and Cham Bank (CHB), were also directly targeted by US and European Union sanctions in 2012 and 2018, respectively. Then, SIIB managed to remove itself from the EU sanctions list in June 2014.

Sanctions have negative impact on all aspects of sustainable development, particularly on the 8<sup>th</sup> goal of sustainable development of economic growth. The Syrian GDP growth declined by 26.3% in 2013 to slightly recover to just over 1% in 2021 (Planning and International Cooperation Commission, 2023). Banks are among the highly cyclical and most-prone sectors to economic conditions. Hence, they are expected to significantly bear the negative consequences of sanctions.

Economic sanctions had many adverse consequences on the activities and services of Syrian banks. First, direct money transfers to Syrian banks became very difficult and illegal in many countries because of the multiple sanctions system. They have also enforced restraints on the transfers to neighboring countries with potential final transfers via the global correspondent banking network. Second, despite those strategic partners, representing foreign associates who established the Syrian banks mainly (Lebanese, Jordanian, and Gulf financial institutions), have maintained their ownership after 2011, they maintained a passive attitude towards their Syrian affiliates. In general, they have chosen to dissociate themselves and limit their interactions & connections with their Syrian affiliates instead of supporting them. Their fear of sanctions was strengthened when the Central Bank of Syria was targeted by the Caesar Act in December 2020. This Act and other multiple sanctions drafts and laws have reinforced the 'Fear effect' of dealing with Syria. Hence, almost all international private actors, banks, and companies avoid conducting business with Syria, including for humanitarian purposes. An attempt to impose sanctions on ten private Syrian banks was not passed into law by Congress. Some non-Syrian banks were subject to a US embargo for breaching sanctions, which discouraged international banks from interacting with Syrian banks.

Economic sanctions, on the contrary, represent an excellent opportunity for banks for innovation and creativity. Sanctions perform as stress-tests that encourage banks to redesign their services to overcome the adverse consequences of sanctions. Banks fight for their survival by introducing new services, changing their fees structure, and finding ways to circumvent sanctions.

This paper examines the impact of sanctions on Syrian private banks by measuring the changes in these banks' main revenues, interests, and commissions before and after the Syrian sanctions. We find that the majority of Syrian private banks tailored their operations towards riskless activities to counteract these sanctions. Our results contribute to the ongoing debate on the impact of financial sanctions on banks' services and address the question of whether sanctions change banks' risk-taking.

## **2. Literature Review**

The first reported episode of sanctions was the ban of all trade between Megara and the Athenian Empire around 432 BC, where the citizens of the Greek city of Megara were banned from reaching the

marketplaces of Athens (Hufbauer and Oegg, 2007). Sanctions are imposed by the sender country or countries to affect the geopolitical decision of the government of a target country (Stone, 2016). Sanctions range from the soft format of the diplomatic version to the more severe version of economic and financial embargos. The adverse impact of sanctions on sender countries and firms is generally transmitted through lower expected profits, increased uncertainty, and negative wealth effect (Stone, 2016).

An old and still evolving strand in the literature is concerned with the effectiveness of sanctions in achieving their goals. While a number of studies argue that sanctions are ineffective tools, particularly in the post-Cold War era (Schott and Elliot, 1990; Amuzegar, 1997; Clawson, 1998; Preeg, 2000; Farmer, 2000; Chakawa, 2022), others argue that they could be effective if managed in a smart method (Cortright and Lopez, 2002; Torbat, 2005)

Another overwhelming strand in the literature on sanctions examines the impact of sanctions on targeted firms and economies. Ghasseminejad and Jahan-Parvar, (2021) investigated the impact of financial sanctions on publicly traded companies in the Tehran Stock Exchange (TSE). It considers the effect of imposing and lifting sanctions on the target country's traded equities and examines the differences in the reaction of politically connected firms and those without such connections. The study was conducted on the 350 firms listed in TSE between 2000 and 2016 and found that firms targeted by sanctions decreased their leverage and increased their cash holding to manage their increased risk and that the sanctions worsened return ratios. In addition, the study showed that sanctions significantly adversely affect targeted firms' profitability.

Gurvich and Prilepskiy (2015) and Stone (2016) investigate the impact of Western financial sanctions on Russian firms and the economy. Gurvich and Prilepskiy (2015) find that sanctions have directly affected sanctioned state-controlled banks, oil, gas, and arms companies by severely constraining foreign funding and have indirectly affected non-sanctioned companies by reducing inflows of foreign direct investments and causing funding conditions to deteriorate. Russian companies self-adjusted to sanctions by utilizing foreign assets that were accumulated earlier for debt repayment. Stone (2016) argues that sanctions decrease domestic demand and investment and cause a surge of capital outflows after sanctions. Moreover, sanctions lower the expected profits of large Russian companies and increase the risk premia required for purchasing Russian stocks. Akbarpour Roshan, Mehrbod, And Abbassi (2015) examine the impact of economic sanctions on sustainable development in Iran focusing on health indicators. They found harmful impact of sanctions on medicine and treatment, air pollution and environment.

Nzaro, Njanike, and Munenerwa (2011) investigated the impact of economic sanctions on banks in Zimbabwe. They find that these sanctions caused the closure of nostro accounts, limited the accessibility of Zimbabwean commercial banks to access offshore lines of credit, and caused difficulties in transferring money overseas in addition to hurting financial intermediation. However, Naumova (2019) found that the Russian banking system showed resilience and adaptability to economic sanctions imposed during the period 2014 and 2017.

Another strand in the literature concerns the vulnerability characteristics of banks targeted by the sanctions. Bolgorian and Mayeli (2019) examine the determinants of Iranian banks' vulnerability to financial sanctions. The data sample covers 12 Iranian banks listed at TSE for the period from 2008 to 2017. They find that banks with higher capital and also higher state ownership are more vulnerable to economic and financial sanctions. They also found that there is a negative relationship between banks' liquidity ratio and their vulnerability to financial sanctions.

On the flip side of the coin, a strand in the literature concentrated on the impact of sanctions not on the targeted firms but on the sender firms. Besedeš, Goldbach, and Nitsch (2021) examine the effect of financial sanctions on the country imposing them. The study analyzes the business responses of German non-financial entities to the imposition of sanctions on 23 countries over the period from January 1999

to December 2014. They find that German financial activities with sanctioned countries are reduced after the imposition of sanctions. Moreover, German firms doing business with sanctioned countries tend to be disproportionately large and often have alternative business opportunities. Furthermore, firms affected by sanctions expand their activities with non-sanctioned countries, some of which display close trade ties to the sanctioned country. In addition, they document no impact of sanctions on broader measures of German firm performance, such as employment or total sales. They conclude that the economic costs of financial sanctions on German firms are limited.

Köster and Pelster (2018) analyze the impact of financial penalties on the stability of the banking sector as measured by the banks' systemic risk using a database of 671 financial penalties imposed between 2007 and 2014 on 68 internationally listed banks from 20 countries. They find evidence of a significant negative relation between financial penalties and banks' systemic risk exposure but not between financial penalties and banks' systemic risk contribution. They also demonstrate that the characteristics of the regulatory and supervisory system of a given country affect the relationship between financial penalties and banks' systemic risk exposure.

### **3. Theoretical Framework**

A number of theories can be proposed to explain banks' risk-taking during the sanctions. Contingency theory argues that firms should align resources and strategies to counteract the adversities that arise from internal and external situations (Lawrence and Lorsch, 1999). However, the Resource-Based Theory (RBT) contends that firms adjust to difficult conditions by holding valuable resources and capabilities (Barney, 2001). However, Sirmon and Hitt (2009) advanced the Resource Orchestration Theory (ROT) and argued that simple holding of these resources and capabilities is not enough to counteract difficult conditions unless these resources are well-managed.

The Entrepreneurial Orientation (EO) recommended by Rauch et al. (2009) could explain the survival of banks during sanctions. EO may take three forms in the case of sanctioned banks: service innovation, proactiveness, and risk-taking. In the same vein, chaos theory (CT) proposed by Le Nguyen and Kock (2011) can also be put forward to explain banks' risk-taking behavior during sanctions. We argue that when a bank is pushed to the edge-of-chaos area, as it happens during sanctions, it shows its maximum creativity and innovation in response to sanctions. The new sanctions environment will encourage banks to take extraordinary steps to overcome such new conditions. Chakawa (2022) argues that the game theory explains how sanctioned governments attempt to circumvent sanctions to survive. Although Chakawa (2022) applies the game theory to sanctioned governments, they are equally applicable to banks.

We argue that sanctions affect banks' risk-taking behavior in several methods. Banks with international activities will lose revenues due to sanctions because they usually limit banking and other financial services and transactions, including exclusion from the SWIFT international messaging platform used for payments. International banks usually disconnect relations and correspondent banking services with banks in sanctioned countries, even if they are legitimate counterparties, in an attempt to de-risk sanctions compliance (Ahn and Ludema, 2020).

Bank customers in sanctioned countries become insolvent because they lose their import or export revenues. Hence, banks will end up with more non-performing loans and less revenue. As a result, they try to avoid additional losses and become more reluctant to engage in risky activities. In addition, sanctions inject a new source of uncertainty into the long-term decision-making of banks and make them more risk-averse (Stone, 2016). On the contrary, sanctioned banks may behave more aggressively and are willing to work with riskier or inferior partners for international transactions (Bolgarian and Mayeli, 2019).

We will test the following main hypothesis:

**H<sub>0</sub>:** Syrian private banks did not change their services due to the sanctions, and the following two sub-hypotheses:

**H<sub>01</sub>:** Syrian private banks' interest revenue components did not change due to the sanctions.

**H<sub>02</sub>:** Syrian private banks' commission revenue components did not change due to the sanctions.

## 4. Data and Sample

We study the impact of sanctions on the full population of 14 private Syrian banks using data from their establishment date until the end of the year 2020 using published financial statements and annual reports. We collect their financial statements and annual reports from Damascus Securities Exchange (DSE) and Syrian Commission on Financial Markets & Securities (SCFMS) websites. We choose to use information from annual financial statements because annual financial statements are audited by external auditors in addition to the SCFMS and the Central Bank of Syria according to Syrian laws, which gives the collected data more reliability. We use the revenue notes in addition to the income statement to extract details on revenue components.

Using the banks' Annual financial statements, we presented the main revenues of the banks, which are interest revenue & commission revenue. We calculated the percentage of each item from the total related revenue item, and then using the descriptive method, we analyzed the results and traced the changes throughout the years to determine the effect of sanctions on the banks' services. We assume that the Sanctions date for all studied banks is the year 2012, which represents the year when sanctions were imposed on the first Syrian bank, the Syrian International Islamic Bank (SIIB).

## 5. Methodology and Results

We grouped the interest revenue components into three main groups: (1) interest from deposits in other banks which represents the interest that the banks collect from investing its money in deposits in other banks, meaning that it represents income from riskless operations. The other group (2) Interest in dealing with the government since the sanctions may include any party that deals with certain government-owned entities. The last group is (3) Interest from risky banking operations, which includes interest from holding securities, discounting bills, and interest from loans. Table 1 summarizes the descriptive statistics of the above-mentioned groups for our sample of private banks. It clearly shows that interests in risky operations generally increase after imposing the sanctions for all banks apart from BSO. The results confirmed that the sanctions resulted in a change in the risk appetite of the bank management with regard to interest revenue to be more risk takers apart from BSO.

When the Syrian crisis began, Syrian private banks had the Central Bank of Syria's approval to transfer their dollar-based capital to their strategic partner outside Syria for investment. After the sanctions were imposed, the transfer of this money back to Syria became impossible, causing the invested deposits to grow by the interest. In addition, the change in the exchange rate has also contributed to inflating these deposit values in Syrian pounds, knowing that almost half of the banks' capitals were dollar-based, including income from interest and sharia-compliant income (SIIB, CHB). As for BSO, looking into the details of interest revenue, we notice that in spite of the fact that the total interest revenue from risky operations has declined, the percentage of interest from deposits in other banks "the majority of this number represents the dollar-based capital" has increased at the cost of the decline and/or disappearance of other interest generating assets like interest from securities and interest from current debit accounts, Unlike other banks, BSO did not try to compensate for the decline of its interest revenue on other interest generating assets, showing the bank conservatism into taking the risk.

We also grouped the commission revenue details into two main groups: (1) Commissions from riskless banking operations, which represent the commissions that the banks collect from opening

accounts, money withdrawal, ATM withdrawal, safekeeping, e-services etc., which all represent income from riskless operations. The other group (2) Commissions from risky banking operations: represent both direct and indirect facilities. Table 2 illustrates the descriptive statistics of both types of commissions for our sample of private banks. It clearly indicates that commissions from risky operations generally decline for all banks apart from SIIB. These results confirmed that bankers tend to diversify their income sources by increasing commissions on opening accounts and withdrawal money in an attempt to compensate for lower commissions on direct and indirect facilities.

As for SIIB, unlike all the other banks, his strategic partner, Qatar International Islamic Bank (QIIB), has enforced the embargo on SIIB deposits, "the transferred dollar-based capital," and froze the deposits with no interest, which enforced the bank to expand his operations to compensate for the lost income, and tried to dominate the market of direct and indirect facilities by giving the few importers big facilities to work with the bank.

We use the independent sample t-test to examine the differences between two independent samples (sanctions have an effect on the three divisions of interest revenue or not). Table 3 illustrates the results of applying the test of equality of means for the three groups before and after the sanctions. It shows that interest/revenues from risky activities have increased significantly after the sanctions for three banks, FSBS, BBS, and SHRQ. However, there is a significant increase in interest in risky activities for BSO. BBSF has shown a significant decline in interest income from investing in government securities. Hence, we can reject the first null hypothesis that Syrian private banks' interest revenue components did not change due to the sanctions.

Table 4 shows that 11 banks document significant increases in commissions from riskless activities. This result is in agreement with previous results from Table 2 that banks seek to diversify their income sources by increasing commissions on opening accounts and withdrawal money in an attempt to compensate for lower commissions on direct and indirect facilities. Therefore, we can reject the second null hypothesis that Syrian private banks' commission revenue components did not change due to the sanctions.

Table 1: Group Statistics of Sanctions Effect on Interest/Revenues

Bank	Descriptive	Dummy	N	Mean	Std. Deviation	Std. Error Mean	Bank	Descriptive	Dummy	N	Mean	Std. Deviation	Std. Error Mean
BSO	Riskless	0	7	41.17%	17.96%	6.79%	BOJS	Riskless	0	4	16.56%	12.86%	6.43%
		1	7	64.16%	15.79%	5.97%			1	4	5.02%	3.96%	1.98%
	Government	0	7	0.95%	1.63%	0.61%		Government	0	4	18.69%	37.38%	18.69%
		1	7	2.02%	4.84%	1.83%			1	4	0.00%	0.00%	0.00%
	Risky	0	7	57.89%	16.90%	6.39%		Risky	0	4	64.76%	44.61%	22.31%
		1	7	33.82%	15.41%	5.83%			1	4	94.98%	3.96%	1.98%
BASY	Riskless	0	7	40.67%	27.27%	10.31%	QNBS	Riskless	0	3	58.95%	36.15%	20.87%
		1	7	20.10%	13.55%	5.12%			1	3	44.72%	7.12%	4.11%
	Government	0	7	2.87%	4.71%	1.78%		Risky	0	3	41.06%	36.16%	20.88%
		1	7	0.44%	1.15%	0.44%			1	3	55.29%	7.13%	4.12%
	Risky	0	7	56.46%	30.42%	11.50%		Riskless	0	7	34.07%	33.01%	12.48%
		1	7	79.47%	14.00%	5.29%			1	7	5.18%	6.01%	2.27%
BBSF	Riskless	0	7	39.68%	34.01%	12.86%	BBS	Government	0	7	0.05%	0.10%	0.04%
		1	7	16.26%	11.63%	4.39%			1	7	0.00%	0.00%	0.00%
	Government	0	7	1.85%	1.82%	0.69%		Risky	0	7	65.88%	32.96%	12.46%
		1	7	0.00%	0.00%	0.00%			1	7	94.83%	6.01%	2.27%
	Risky	0	7	58.47%	33.62%	12.71%		Riskless	0	3	8.05%	4.51%	2.60%
		1	7	83.73%	11.62%	4.39%			1	3	2.48%	0.60%	0.35%
IBTF	Riskless	0	7	29.85%	17.17%	6.49%	SHRQ	Government	0	3	0.00%	0.00%	0.00%
		1	7	21.97%	6.72%	2.54%			1	3	0.00%	0.00%	0.00%
	Government	0	7	0.44%	0.93%	0.35%		Risky	0	3	91.96%	4.51%	2.60%
		1	7	0.36%	0.96%	0.36%			1	3	97.51%	0.60%	0.34%
	Risky	0	7	69.71%	17.67%	6.68%		Riskless	0	6	39.86%	46.06%	18.80%
		1	7	77.67%	7.03%	2.66%			1	6	15.04%	17.85%	7.29%
ARBS	Riskless	0	7	35.01%	34.46%	13.03%	SGB	Risky	0	6	60.14%	46.06%	18.80%
		1	7	23.25%	15.77%	5.96%			1	6	84.96%	17.85%	7.29%
	Government	0	7	0.28%	0.51%	0.19%	Riskless	0	5	30.06%	41.15%	18.40%	
		1	7	0.00%	0.00%	0.00%		1	5	20.76%	7.87%	3.52%	
	Risky	0	7	64.71%	34.57%	13.07%	CHB	Risky	0	5	69.94%	41.15%	18.40%
		1	7	76.75%	15.76%	5.96%			1	5	79.24%	7.87%	3.52%
FSBS	Riskless	0	4	54.24%	37.28%	18.64%	SIIB	Riskless	0	5	24.60%	31.47%	14.07%
		1	4	7.39%	0.63%	0.32%			1	5	5.44%	0.96%	0.43%
	Risky	0	4	39.08%	37.02%	18.51%		Risky	0	5	75.40%	31.47%	14.07%
		1	4	77.37%	3.54%	1.77%			1	5	94.56%	0.96%	0.43%

Table 2: Group Statistics of Sanctions Effect on Commissions

Bank	Descriptive	Dummy	N	Mean	Std. Deviation	Std. Error Mean	Bank	Descriptive	Dummy	N	Mean	Std. Deviation	Std. Error Mean
BSO	Riskless	0	7	33.02%	15.74%	5.95%	BOJS	Riskless	0	4	6.32%	6.67%	3.33%
		1	7	80.43%	5.60%	2.12%			1	4	25.90%	11.59%	5.79%
	Risky	0	7	71.33%	4.59%	1.74%		Risky	0	4	93.68%	6.67%	3.33%
		1	7	19.58%	5.60%	2.12%			1	4	74.11%	11.59%	5.79%
BASY	Riskless	0	7	23.76%	14.82%	5.60%	QNBS	Riskless	0	3	42.20%	51.13%	29.52%
		1	7	57.34%	6.92%	2.62%			1	3	54.47%	7.76%	4.48%
	Risky	0	7	76.24%	14.82%	5.60%		Risky	0	3	57.80%	51.14%	29.52%
		1	7	42.66%	6.92%	2.62%			1	3	45.53%	7.76%	4.48%
BBSF	Riskless	0	7	39.79%	10.82%	4.09%	BBS	Riskless	0	7	31.40%	32.49%	12.28%
		1	7	62.15%	12.75%	4.82%			1	7	54.26%	14.87%	5.62%
	Risky	0	7	60.21%	10.82%	4.09%		Risky	0	7	68.61%	32.49%	12.28%
		1	7	37.85%	12.75%	4.82%			1	7	45.74%	14.88%	5.62%
IBTF	Riskless	0	7	6.57%	5.44%	2.06%	SHRQ	Riskless	0	3	12.27%	4.87%	2.81%
		1	7	39.53%	7.43%	2.81%			1	3	46.16%	6.27%	3.62%
	Risky	0	7	93.44%	5.44%	2.06%		Risky	0	3	87.73%	4.87%	2.81%
		1	7	60.47%	7.43%	2.81%			1	3	53.84%	6.27%	3.62%
ARBS	Riskless	0	7	9.46%	6.57%	2.48%	SGB	Riskless	0	6	19.93%	18.54%	7.57%
		1	7	55.61%	13.08%	4.95%			1	6	60.48%	11.36%	4.64%
	Risky	0	7	76.26%	34.01%	12.85%		Risky	0	6	63.41%	34.83%	14.22%
		1	7	44.39%	13.08%	4.94%			1	6	39.52%	11.36%	4.64%
FSBS	Riskless	0	4	15.68%	16.60%	8.30%	CHB	Riskless	0	5	38.33%	23.17%	10.36%
		1	4	72.26%	16.55%	8.28%			1	5	93.21%	15.19%	6.79%
	Risky	0	4	59.32%	41.60%	20.80%		Risky	0	5	61.67%	23.17%	10.36%
		1	4	27.75%	16.55%	8.28%			1	5	6.79%	15.19%	6.79%
BOJS	Riskless	0	4	6.32%	6.67%	3.33%	SIIB	Riskless	0	5	31.04%	19.18%	8.58%
		1	4	25.90%	11.59%	5.79%			1	5	23.41%	3.91%	1.75%
	Risky	0	4	93.68%	6.67%	3.33%		Risky	0	5	68.96%	19.18%	8.58%
		1	4	74.11%	11.59%	5.79%			1	5	76.59%	3.91%	1.75%



Table 3: Independent Samples Test of Sanctions Effect on Interest/Revenues

		Levene's Test for Equality of Variances		t-test for Equality of Means					Levene's Test for Equality of Variances		t-test for Equality of Means		
				t	df	Sig. (2-tailed)					t	df	Sig. (2-tailed)
		f	sig						f	sig			
<b>BSO</b>	<b>Riskless</b>	0.349	0.566	-2.544	12	0.026	<b>BOJS</b>	<b>Riskless</b>	19.103	0.005	1.716	3.564	0.17
	<b>Gov.</b>	1.755	0.21	-0.554	12	0.59		<b>Gov.</b>	9	0.024	1	3	0.391
	<b>Risky</b>	0.471	0.506	2.784	12	0.017		<b>Risky</b>	5.793	0.053	-1.349	6	0.226
<b>BASY</b>	<b>Riskless</b>	3.026	0.107	1.787	12	0.099	<b>QNBS</b>	<b>Riskless</b>	7.604	0.051	0.669	2.155	0.568
	<b>Gov.</b>	2.904	0.114	1.328	12	0.209		<b>Risky</b>	7.595	0.051	-0.669	2.155	0.568
	<b>Risky</b>	2.796	0.12	-1.817	12	0.094	<b>BBS</b>	<b>Riskless</b>	6.268	0.028	2.278	6.397	0.06
<b>BBSF</b>	<b>Riskless</b>	5.76	0.034	1.724	7.383	0.126		<b>Gov.</b>	5.534	0.037	1.159	6	0.291
	<b>Gov.</b>	7.919	0.016	2.686	6	0.036		<b>Risky</b>	6.256	0.028	-2.285	6.398	0.06
	<b>Risky</b>	6.329	0.027	-1.879	7.414	0.1	<b>SHRQ</b>	<b>Riskless</b>	11.849	0.026	2.121	2.07	0.164
<b>IBTF</b>	<b>Riskless</b>	23.691	0	1.131	7.798	0.292		<b>Risky</b>	11.855	0.026	-2.116	2.07	0.164
	<b>Gov.</b>	0	0.996	0.147	12	0.886	<b>SGB</b>	<b>Riskless</b>	9.233	0.012	1.231	6.469	0.261
	<b>Risky</b>	25.508	0	-1.107	7.855	0.301		<b>Risky</b>	9.237	0.012	-1.231	6.468	0.261
<b>ARBS</b>	<b>Riskless</b>	3.311	0.094	0.821	8.406	0.434	<b>CHB</b>	<b>Riskless</b>	9.956	0.013	0.496	4.292	0.644
	<b>Gov.</b>	13.1	0.004	1.462	6	0.194		<b>Risky</b>	9.956	0.013	-0.496	4.292	0.644
	<b>Risky</b>	3.559	0.084	-0.838	12	0.418	<b>SIIB</b>	<b>Riskless</b>	6.334	0.036	1.361	4.007	0.245
<b>FSBS</b>	<b>Riskless</b>	8.43	0.027	2.513	3.002	0.087		<b>Risky</b>	6.334	0.036	-1.36	4.007	0.245
	<b>Risky</b>	12.336	0.013	-2.059	3.055	0.13							

Table 4: Independent Sample Test of Sanctions Effect on Commissions

		Levene's Test for Equality of Variances		t-test for Equality of Means					Levene's Test for Equality of Variances		t-test for Equality of Means		
		f	sig	t	df	Sig. (2-tailed)			f	sig	t	df	Sig. (2-tailed)
BSO	Riskless	1.94	0.189	-7.505	12	0	BOJS	Riskless	3.968	0.093	-2.928	6	0.026
	Risky	0.08	0.782	18.905	12	0		Risky	3.968	0.093	2.928	6	0.026
BASY	Riskless	3.583	0.083	-5.433	12	0	QNBS	Riskless	8.068	0.047	-0.411	2.092	0.719
	Risky	3.583	0.083	5.433	12	0		Risky	8.075	0.047	0.411	2.092	0.719
BBSF	Riskless	0.222	0.646	-3.537	12	0.004	BBS	Riskless	2.154	0.168	-1.693	12	0.116
	Risky	0.221	0.646	3.537	12	0.004		Risky	2.155	0.168	1.693	12	0.116
IBTF	Riskless	1.341	0.269	-9.474	12	0	SHRQ	Riskless	0.17	0.702	-7.397	4	0.002
	Risky	1.34	0.27	9.474	12	0		Risky	0.17	0.702	7.397	4	0.002
ARBS	Riskless	5.045	0.044	-8.34	8.842	0	SGB	Riskless	0.187	0.674	-4.569	10	0.001
	Risky	1.327	0.272	2.314	12	0.039		Risky	5.691	0.038	1.597	6.052	0.161
FSBS	Riskless	0.015	0.908	-4.827	6	0.003	CHB	Riskless	1.882	0.207	-4.429	8	0.002
	Risky	1.94	0.213	1.411	6	0.208		Risky	1.882	0.207	4.429	8	0.002
BOJS	Riskless	3.968	0.093	-2.928	6	0.026	SIIB	Riskless	7.786	0.024	0.872	4.333	0.429
	Risky	3.968	0.093	2.928	6	0.026		Risky	7.79	0.024	-0.872	8	0.409

## 6. Conclusions

We investigate the impact of US sanctions on Syrian private banks' revenues and operations. We split our sample into two periods, before and after the sanctions, and tested if there was a significant change in the main components of revenues. The results of this study are in agreement with entrepreneurial orientation and chaos theory as Syrian private banks increase their risk-taking when pushed to the edge-of-chaos area, as it happens during sanctions. They obtain more interest revenues from risky operations despite the loans ceiling set up by the Central Bank of Syria that are meant to control the money supply and exchange rates.

Economic sanctions, despite their adverse impact on Syrian private banks, represent opportunities to innovate and become more resilient. Syrian private banks are forced to reprice their services to increase commissions from riskless services. However, our results contradict the results of Ghasseminejad and Jahan-Parvar (2021), who find that the Iranian firms' appetite for risk declined because of sanctions as they tend to increase their cash holding to manage their increased risk.

To enhance their sustainability, we recommend that Syrian private banks revise their operations to increase their share of interest from less risky activities, especially dealing with the government. Moreover, Syrian private banks may increase their commissions from innovative e-services such as e-banking and e-payment. Furthermore, they may enhance their performance by expanding their portfolios of local securities to take advantage of the current boost of stock prices at the Damascus Securities Exchange.

Our tests assume that the sanctions date for all studied banks is the year 2012, which represents the year when the first Syrian bank, SIIB, was subject to direct sanctions. This study also suggests that all revenues and net income changes were only due to sanctions. Other incidents, such as strategic partners' resignations and changing their ownerships in their affiliate's banks, may have a substantial impact on banks' operations and activities. Hence, future research could carefully disentangle these events and add further insights into our conclusions.

A number of interesting venues for future studies emerge from this study. First, it will be interesting to examine how parent and strategic partners are affected by sanctions imposed on their Syrian affiliates. Second, it will also be stimulating to find out how individual characteristics of Syrian banks affect their resilience during these sanctions. Third, it will be insightful to compare the response of Syrian governmental banks to sanctions to that of private banks. All these venues represent promising fields for further exploration.

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