

# INVESTIGATING THE NEXUS AMONG FINANCIAL, POLITICAL, AND ECONOMIC RISKS IN TURKEY: APPLICATION OF QUANTILE-ON-QUANTILE REGRESSION APPROACH

**JAMIU ADETOLA ODUGBESAN**

Faculty of Economics, Administrative and Social Sciences Cyprus West  
University, Turkey

**TOMIWA SUNDAY ADEBAYO**

Faculty of Economics, Administrative and Social Sciences Cyprus International  
University, Turkey  
odugbesanadetola@gmail.com

## **Abstract**

This study investigates the relationships among the political, financial and economic risks in Turkey using the PRS Group Risks indices covering the period from 1984Q1 to 2018Q4. The nature and directions of the relationship were examined using the innovative Quantile-on-Quantile (Q-Q) regression and Quantile Granger-causality test. Our findings revealed a positive and significant influence of economic risk on financial risk, as well as a positive and significant influence financial risk on economic risk, both at different quantiles. Moreover, while economic risk was found to positively influence political risk at different quantiles, the influence of political risk on economic risk was found to be negative at different quantiles. In addition, the findings on the direction of causal relationship show bidirectional causality between economic risk and political risks, financial and political risks, and financial and political risks in the 0.25 quantiles. Similarly, at 0.75 quantiles, a bidirectional causality between political and economic risks was found, as well as a unidirectional causality was found running from economic risk to financial risk, and from economic risk to financial risk. Meanwhile, at the 0.5 quantile, an evidence of a unidirectional causality was found running from economic risk to political risk and from economic risk to financial risk. Finally, the paper suggested policy directions based on the findings for the Turkish policymakers.

**Keywords:** Financial risk; Economic risk; Political risk; Quantile Granger Causality; Quantile-on-Quantile regression; Turkey

**JEL Classification:** C01, C54, C58, G01

## 1. INTRODUCTION

Over the years, the transformation of Turkey has been drastic from the financial crisis experienced in the 2000s which the country was not spared from the countries affected globally (Kirikalleli & Onyibor, 2020). As at 2013, the country GDP reached an all-time high of 950.58 billion USD, but decreased to 852.68 billion USD in 2017 (World Bank, 2021), before it was hit by recession in 2018 and the GDP fell to 771.35 billion USD (World Bank, 2021). The country economy was in the process of recovery when the COVID 19 pandemic struck and not only Turkish economy was disrupted, but the global economy, which according to some studies opined will to some extent has effect on the financial soundness of some countries (ECB, 2020; Phan & Narayan, 2020). According to European Economic Forecast (2020), the effect of the pandemic became more pronounced in Turkey owing to its high integration in global value chains and reliance on tourism and transport. As at early 2020, the financial stress became more pronounced, with credit default swap spreads increased to multi-year highs in 2020 and the currency (Lira) depreciated against US dollar for about 17% (EEF, 2020). Though, a weaker lira would work to compress imports and external imbalances, the inflammatory pressures will be stoked and trigger vulnerabilities that would arise by open net foreign currency position of the financial sector.

At the time Turkey was struck with COVID-19, the country sought to cushion the effect by weakening its monetary policy, elongate credits and delved into foreign reserves. These measures affect Turkey's international net position and current account which prevented the country to reach the projected 5% GDP contraction in 2020 (Satander, 2021). Meanwhile, Turkey's economy rebounded by 6.7% in the third quarter of 2020 and according to IMF's October 2020 forecast, it is expected to grow by 5% in 2021 (Satander, 2021). However, the country GDP had already performed below the projection at 4.5% against the 5% before plummeted by 9.9% between April and June 2020 at the height of the pandemic. Moreover, Turkey's macroeconomics balance was observed to be worsened in 2020 with its current account extending a deficit of about 24 billion USD in comparison to a surplus of 8.9 billion USD in 2019 (Satander, 2021). Meanwhile, the deficit is forecasted to trim down to 5.8 billion in 2021 which would depend on external factor like international trade and tourist activity. Though, the government gross debt is low, it is expected to rise to about 41.79% of GDP by the end of 2020 against the 33% in 2019 (Satander, 2021).

In the midst of global challenge of the pandemic, the Economist (2021) observed the presence of an ongoing political tension in Turkey which has failed to subdued since the failed attempt coup in 2016, and opined that the instability is likely to continue owing to external relationship tension of Turkey with traditional Western allies like United State of America and European Union that still linger on. The Economist (2021) observed that the Turkish economy has become less stable in the recent time owing to the domestic political tensions, fraught international relations and economic policies that are unorthodox. These accordingly have jeopardized the

hard-worn development in the stability of macroeconomics in the previous years. In view of the significant increase in the financial and economic instabilities being experienced by most emerging economies couple with the challenge of COVID-19 pandemic, it becomes imperative to understand the nexus among the financial risk, political risk and economic risk within the context of Turkey.

In another dimension, Cevik, Dibooglu, and Kenc (2016) observed that owing to the financial and economic instabilities of most emerging economies arises due to global crises, it might interest the global investors to consider evaluating the riskiness of the investment climate with the aim of ameliorating the unexpected losses. This corroborates the position of Cardarelli, Elekdag, & Lall (2011) that introduced a “financial stress index (FSI)” in their study as a proxy for financial risk status and examined its effect on the economic downturn of developing countries economy. It was demonstrated in the study that banking-related financial risk causes a significant economic contraction. Similar study was carried out by Balakrishman et al. (2011) which adapted the index and found a “spill-over effect” of the financial stress from advanced economies to emerging economies at the time of global crisis in 2008. They study also demonstrates that in the emerging economies, the increase in level of current account, fiscal balances, and foreign reserves would reduce the effect of financial instabilities on the real economies. Moreover, a recent study by Kondoz, Kirikkaleli, & Athari (2021) confirmed a bi-directional relationship between economic risk and financial risk in Venezuela, while a unidirectional causal relationship running from economic risk financial risk was found for Columbia and Peru. In addition, financial risk was found to significantly influence economic risk in Brazil and Argentina (Kondoz, Kirikkaleli, & Athari, 2021).

Meanwhile, the studies of Cevik et al. (2016) and Stolbov & Shchepeleva (2016) opined that effect of financial stress on economic instability could emerge through different channels. Thus, an “Economic Policy Uncertainty Index (EPUI)” was developed by Baker, Bloom, & Davis (2016) to investigate the effect of economic uncertainty in the financial sector. The study found that increase in economic uncertainty causes significant stock price volatility; decrease the rate of investments, and triggers unemployment in the financial sector. Meanwhile, with the consideration of EPUI, the study of Karnizova and Li (2014) demonstrated the negative impact of economic instabilities on the performance of financial variables, while the study of Caglayan and Xu (2019) found it on the financial institutions stability, and Antonakakis, Chatziantoniou, and Filis (2013) and Arouri et al. (2016) found it on the stock market returns.

Due to the variation of studies on the nexus between financial and economic instabilities, which according to Kondoz, Kirikkaleli, & Athari (2021) could be as a result of the studies focus on different data sets, regions and time periods, our study empirically investigate the nature and direction of the relationship among financial, political and economic risks for Turkey. This aspect of economic and financial risks in Turkey has not been exhaustively investigated in the context of Turkey and this constitutes one of the novelties of this study. In view of this, our study aims to provide an in depth understanding to the literature through the exploration of the

causal nexus between finance and economic within the risk model, specifically for Turkey with the aim of filling the gap in the literature.

Scant research studies have been conducted to inform the public about the relationship between economic risk, political risk, and financial risk. The findings are often constrained to traditional scientific methodologies and generalized steps measures (Erbe et al. 1996; Dutta & Roy, 2011; Odugbesan & Adebayo, 2020; Sari et al. 2013; Sridi & Ghardallou, 2019). Recognizing the same concern, Sharif et al. (2020) stated that methodologies are critical in producing impartial analysis results and emphasized the importance of employing novel econometric techniques. Failure of current time series-driven results can persuade policymakers to implement efficient policies. The innovative quantile-on-quantile (Q-Q) methodology was used in this analysis to assess the relation between economic risk, political risk, and financial risk in Turkey. The primary motive for this research is to add to the current literature in three areas (i) this research assesses the economic risk, political risk, and financial risk nexus by utilizing the innovative quantile-on-quantile method initiated by Sim and Zhou (2015). The Q-Q approach is characterized by its capability to incorporate the fundamentals of quantile regression and non-parametric estimation research. As a result, the method appears to transform the quantile of one parameter into another, and the results have the opportunities to resolve questions about the interconnection between economic risk, political risk, and financial risk at both lower and higher quantiles of time series data (ii) With such a wide scale, this paper explores time-series dependency in Turkey. We conclude that the findings of our study would include a comprehensive representation of the critical economic risk, political risk, and financial risk nexus that would not be feasible using traditional approaches. (iii) This research also employs Troster (2018) Granger-causality in quantiles test, which examines the causal relationship in all quantiles of the conditional distribution. Another purpose of this research is to look at a causal interaction between conditional distribution quantiles. Using this approach, we can distinguish between the causality impacting the distribution's tails and the median. When all quantiles are centered, it also provides an appropriate circumstance for Granger-causality. Furthermore, Troster (2018) approach is consistent over a broad variety of quantiles, and it emphasizes the non-linear state in a quantile regression model. The remainder of the paper is structured as follows: Section 2 present the review of relevant studies; the data description, sources and method of estimation were addressed in Section 3; and the result findings were presented in Section; while the study rounded up in Section 5 with the discussion, conclusion, and limitations, as well as the direction for future studies.

## **2. THEORETICAL AND EMPIRICAL LITERATURE**

The financial, economic and political vulnerabilities around the globe especially the current pandemic have triggered the interest of scholars and policy makers to explore the factors that contribute to these vulnerabilities. Over the years, several theoretical and empirical studies have examined the nexus between political, financial and economic activities. Meanwhile, the studies in the context are limited,

thus the aim of this study to investigate the possible effect of political and financial risks on economic risks; if there is relationship, to determine the direction of the relationship; as well as controlling for the global uncertainty within this framework.

The examination of the nexus between economic and finance in the literature revealed three main strands of hypotheses which are: the “finance-led growth”, “growth-led finance”, as well as the “feedback”. Literature suggests that the “finance-led growth” and “growth-led” hypotheses are about the study of Patrick (1966) which are “supply-leading” and “demand-following” respectively. According to Kondo, Kirikkaleli, and Athari (2021), the “supply-leading” suggest “that development services acts as a catalyst and boosts economic growth”. This view corroborates the position of King & Levine (1993) who argued that an increase in the level of financial development significantly affects economic growth. Meanwhile, McKinnon (1973) and Shaw (1973) posited that the opposite position is valid where instability exists within the country’s financial system, which could lead to a decrease in economic growth and makes the economic stability becomes frozen (Odugbesan & Rjoub, 2020; Odugbesan et al. 2020; Rjoub et al. 2021a; 2021b). As for the “demand-following”, it suggests that financial activities are inactive and has no causal relationship with economic growth process. This position implies that a “well-functioning” financial system is an antecedent of economic growth. Hassan, Sanches, and Yu (2011) posits that the third hypothesis which is “feedback” indicate a bi-directional causal link between economic growth and financial development.

Moreover, the study of Goldsmith (1970) theoretically linked the stability of the financial system to macroeconomic soundness and financial structural dynamics. The study according to Eke et al. (2020) observed that in the “theory of institution”, some actions and inactions have the capacity to influence politics and hence instrumental to the success of financial system. This position was evident in the study of Knoop (2013) who opined that in the context of emerging economies, a poorly designed government policies and outrageous government borrowing can be disincentives, such as sabotaging credit information and winnowing financial repressions instead of promoting financial intermediation. Meanwhile, in the recent time, rather than the fundamental “finance-growth” hypothesis and perceptions, financial risk and economic uncertainty indicators are getting more attention from the researchers, owing to the detrimental impact of country-based, regional, and the global crises. In particular, the current COVID-19 pandemic which took the world unaware and it is causing a significant deterioration in global financial and economic activities (Altig et al. 2020; Choi, 2020; Phan and Narayan, 2020) especially in developing countries. In view of these, the increase in the financial and economic instabilities of most developing countries lends credence to the significance of the investigation of the link between financial and economic risks.

Empirically, several studies have supported the “finance-led growth” hypothesis (Cournede & Denk, 2015; Creel et al. 2015; Ertugrul, Ozun, and Kirikkaleli, 2020; King and Levine, 1993; Levine, Loayza, & Beck, 2000; McKinnon, 1973). However, the opposing view was presented in some studies that rejected the “finance-based growth” hypothesis and opined that a sound financial

system does not accelerate the economic development in a country (Colombage, 2009; Demetriades & Law, 2006; Kirikkaleli, 2016; Odhiambo, 2008; Rousseau & Wachtel, 2002). Meanwhile, a unidirectional relationship between economic growth and financial development was demonstrated in the study of Zang & Kim (2007). Moreover, in respect of financial crises, the studies of Furceri and Mourougane (2012) and Olivaud and Turner (2014) have demonstrated a significant impact of vulnerable financial systems on economic stabilities, which is an indication that the vulnerabilities in the financial system should be detected with the aim of taking regulatory actions and maintain economic stability. Some significant financial risk factors such as low current account, fiscal balances, and foreign reserves were highlighted in the study of Balakrishman et al. (2011) and opined that the negative impact of financial instabilities on economic activities can be ameliorated by putting into consideration these indicators of financial risk. The financial stress and economic activities in Turkey were investigated by Cevik, Dibooglu, & Kenc (2013) by constructing “Turkish Financial Stress Index”. The study employed bivariate VAR methodology and found that financial stress has a significant causal relationship with Turkey economic instability. Similar study was conducted by Cevik et al. (2016) within the context of emerging Asian economies and found financial stress to be significant economic activities that causes significant economic slowdowns for the sampled countries. This finding was corroborated by Aboura & Van Roye (2017) who study the situation in France and conclude that financial stress causes a significant decline in economic activity in the country. Meanwhile, a recent study by Kondaz, Kirikkaleli, & Athari (2021) confirmed a bi-directional relationship between economic risk and financial risk in Venezuela, while a unidirectional relationship running from economic risk to financial risk was found for Colombia and Peru. In addition, financial risk was found to significantly influence economic risk in Brazil and Argentina.

It is a common knowledge that the level of financial investments is one of the factors that makes a developing economy attractive, especially if the investment environment is conducive and such could result to steady growth, meanwhile it is important to downplay the impact of regional or local political instability on the investment values (Ertugrul, Ozun, & Kirikkaleli, 2019). As opined by Ertugrul, Ozun, & Kirikkaleli (2019), capital growth is often affected when instability impacted both the productivity and policymaking, which would possibly shorten the horizon for policymaking and could leads to short-term macroeconomics policies. Literature suggests that the incessant switches of economic policy could result to volatility in the market, and the political vulnerability can deteriorate the financial stability of a country. This view was evident in some studies that explore the impact of political instability on financial systems (Bialkowski, Gottschalk, & Wisniewski, 2008; Brown et al. 1988; Cutler et al. 1989; Hibbs, 1986; Pantzalis et al. 2000; Smales, 2015). The effect of election on stock market in the context of OECD countries was examined in the study Bialkowski, Gottschalk, & Wisniewski (2008), and found that the stock market variance doubles when there is election and conclude that a country’s financial system stability would be negatively impacted by political instability or uncertainty. The possibility of political risk having impact on economic

uncertainty was investigated by Ashraf et al. (2015) who studies the impact of political strikes and labor unrest in Bangladesh garment industry and found a negative effect of the labor unrest on the factories production. Similar study from Pastor & Veronesi (2013) contended that the instability of both political and economic have a significant impact on the risk premium through the investigation of the impact of political risk in the Australia financial market and concluded that as a result of high political risk, the country financial market was significantly impacted. This finding corroborates the position of Aisen & Veiga (2010) who concluded in their study that an increase level of political risk would result to a decrease of the economic growth.

Moreover, some recent studies demonstrate the implication of political risk on the economy of a country (Kirikkaleli, 2016; 2018; Kirikkaleli, 2020; Kirikkaleli & Onyibor, 2020; Sausgruber, Sonntag, & Tyran, 2019; Tabassam, Hashmi, & Rehman, 2016). For instance, the study of Tabassam, Hashmi, & Rehman (2016) measured political risk with four indicators like election, terrorism, regime and strike to determine its impact on Pakistan economy vulnerability and found that political risk has a devastating effect on Pakistan economy. Similarly, the nexus between economic and financial risks in Greece was investigated by Kirikkaleli (2020) using wavelet coherence technique. The study demonstrates that financial risk has a significant impact on political and economic risks. This finding was in congruent with the findings of Kirikkaleli (2016) which investigated the nexus among country risk variables for seven Balkan countries with the utilization of first generation panel approach. The study reveals a long-run effect of financial stability on the political stability, meanwhile, a feedback relationship was found between economic stability and financial stability. The investigation of domestic and foreign risks on the Taiwan stock market index was conducted by Kirikkaleli (2018), and the study shows a long-run relationship between risk and stock market index, while the stock market index is positively impacted by the decrease in the political, economic, and financial risks. In addition, the study on Kirikkaleli & Onyibor (2020) conducted within the context of southern European countries affirmed that an improved financial environment has a significant relationship with low economic risk in those countries, and also reveal that political risk is harmful to economic stability. However, the implications of financial and political risks on economic risks in Turkey have not been exhaustively investigated.

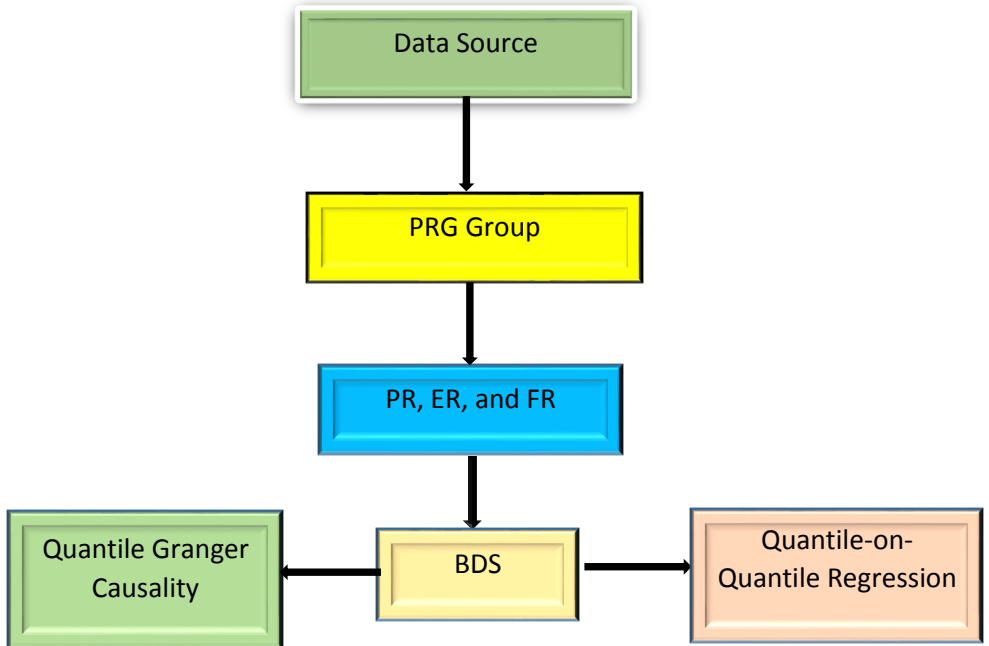
It is evident from the literature that the nexus among political, financial and economic risks using the risk indices PRS Group in the context of Turkey has not been previously subject to an in-depth investigation. Thus, our study aims to apply quantile-on-quantile (Q-Q) techniques to explore the nature of the relationship, while Granger-causality in quantile test (Troster, 2018) was employed to examine the direction of the relationship among financial, political, and economic risks in Turkey with the aim of filling the existing gap in the economic and finance literature.

### 3. DATA AND METHODOLOGY

#### 3.1. DATA

The current paper assesses the nexus between economic risk (ER), political risk (PR), and financial risk (FR). In doing so, the paper utilizes quarterly data spanning between 1984Q1 and 2018Q4. The data for the empirical analysis was sourced from the PRS Group. Political risk comprised of the following parts-government stability, bureaucracy quality, investment profile, internal and external conflicts, corruption, military in power, religious and ethnic tension, socio-economic conditions, democratic accountability, and law and order. Likewise, the economic risk comprises of the following - GDP per capita, current account balance as a percentage of GDP, inflation rate, budget balance, percentage of GDP, and GDP growth (Hoti, 2005). The FRI is comprised of the following- foreign debt service as a percentage of exports of goods and services (XGS), liquidity risk, exchange rate stability, current account (%XGS) components, and foreign debt (%GDP). The measurement of political risk index ranges from 0 (lowest risk level) to 100 (highest risk level), for economic risk and financial risk, it ranges from 0 (lowest risk level) and 50 (highest risk level). The descriptive statistic is depicted in Table 1. The outcomes show that economic risk ranges from 16.04433 to 35.91667, financial risk ranges from 22.33333 to 38.50000, and political risk ranges from 41.66667 to 70.00000. Furthermore, the Jarque-Bera revealed that economic risk and financial risk do not mirror normal distribution while political risk portrays normal distribution. To affirm the linearity of the parameters, we conduct the BDS test. The outcomes of the BDS test is depicted in Table 2 and the outcomes reveal that all the variables do not conform to normal distribution. Based on the outcomes of Jarque-Bera and BDS tests in Tables 1 and 2 respectively, using the normal linear techniques will yield misleading results. Thus, we employed a non-linear approach to assessing the nexus between economic risk and political risk and financial risk in Turkey. Based on this knowledge, the present study utilized the novel quantile on quantile (QQ) regression suggested by Sim and Zhou (2015), to capture the impact of financial risk and political risk on economic risk. As stated by Sharif et al. (2020) the QQ technique combines both the non-parametric and quantile regression techniques to catch the asymmetric and spatial features of the framework over time. Figure 1a depicts the flow of analysis and figure 1b depicts the trend of economic risk, political risk, and financial risk in Turkey between 1984Q1 and 2018Q4.





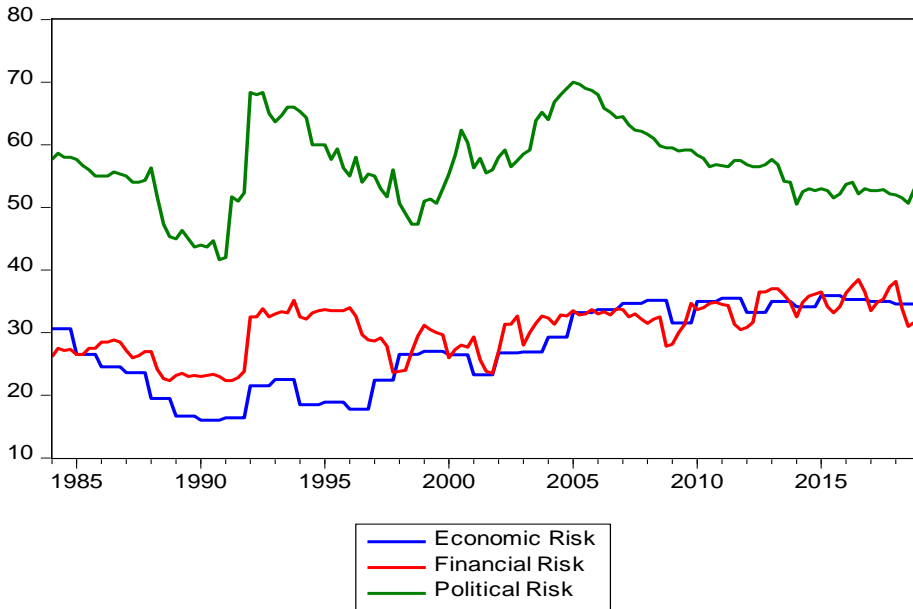
*Figure 1a: Flow of Analysis*

*Table 1: Descriptive Statistics*

	ER	FR	PR
Mean	27.53777	30.58571	56.66905
Median	26.91667	31.58333	56.50000
Maximum	35.91667	38.50000	70.00000
Minimum	16.04433	22.33333	41.66667
Std. Dev.	6.609929	4.207901	6.266146
Skewness	-0.271191	-0.397403	0.033966
Kurtosis	1.693953	2.175819	2.845285
Jarque-Bera	11.66629	7.647458	0.166552
Probability	0.002929	0.021846	0.920097
Observations	140	140	140

*Table 2: Results of the BDS test for nonlinearity (1996)*

Variables	M2	Prob	M3	Prob	M4	Prob	M5	Prob	M6	Prob
ER	49.215	0.000	51.899	0.000	55.358	0.000	60.575	0.000	67.744	0.000
PR	24.973	0.000	26.001	0.000	27.011	0.000	29.176	0.000	31.913	0.000
FR	32.515	0.000	33.323	0.000	34.19	0.000	35.619	0.000	38.429	0.000



**Figure 1b:** Trend of Economic risk, financial risk and Economic Risk in Turkey

### 3.2. METHODOLOGY

The association between two parameters was firstly assessed utilizing the linear regression, which later progressed to the Quantile Regression framework (QRF) initiated by Koenker and Bassett (1978). Nonetheless, there exists a major restriction, which is the failure to capture the complete dependence. At a different level of the conditional distribution, the linkage between two time series the QAF does not consider uncertainty during estimation. To solve this gap, the Quantile on Quantile (QQ) Approach was introduced and developed by Sim and Zhou (2015). The quantile of variable A is a function of variable B was the model under the QQ approach. It assists in capturing changes in the relationship between parameters at each stage of its conditional distribution, including a description of the dependency connection. In modeling the function of the quantile of variable A ( $\theta$ ) lags and variable B. Ma and Koenker (2006) equation can be defined using this study's variable as follows:

$$GH_t = \beta^\theta INB_t + \varepsilon_t^\theta \tag{1}$$

Where:  $\varepsilon_t^\theta$  represents error term.  $\beta^\theta$  is the interaction function is unknown. To examine the relationship between  $\theta$ -quantile of GH and  $\theta$ -quantile of INB, the Taylor expansion of first order of  $\beta^\theta$  around  $INB^t$ . This defined as:

$$\beta^\theta(INB_t) \approx \beta^\theta(INB^t) + \beta^{\theta'}(INB^t)(INB_t - INB^t). \tag{2}$$

Based on Sim and Zhou (2015) study,  $\beta_0(\theta, \tau)$  and  $\beta_1(\theta, \tau)$  is the redefined version of  $\beta^\theta(INB^t)$  and  $\beta^{\theta'}(INB^t)$  respectively. Rewritten Equation (10) as follows:

$$\beta^{\theta}(INB_t) \approx \beta_{\theta}(\theta, \tau) + \beta_1(\theta, \tau)(INB_t - INB^t). \quad (3)$$

Substitute Equation (3) into Equation (1)

$$INB_t \approx \beta_{\theta}(\theta, \tau) + \beta_1(\theta, \tau)(INB_t - INB^t) + \varepsilon_t^{\theta} \quad (4)$$

## 4. FINDINGS AND DISCUSSION

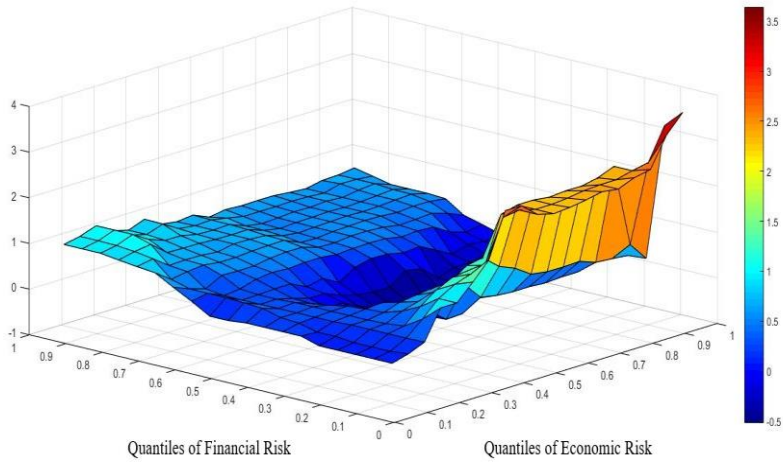
### 4.1. FINDINGS

This section of the study discusses the nexus between economic risk, political risk, and financial risk in Turkey between 1984Q1 and 2018Q4. Figures 1a and 1b depict the quantiles on quantiles of economic risk and financial risk and quantiles of financial risk and economic risk. Also, Figure 2a and 2b depict the quantiles on quantiles of economic risk and political risk and quantiles of political and economic risk

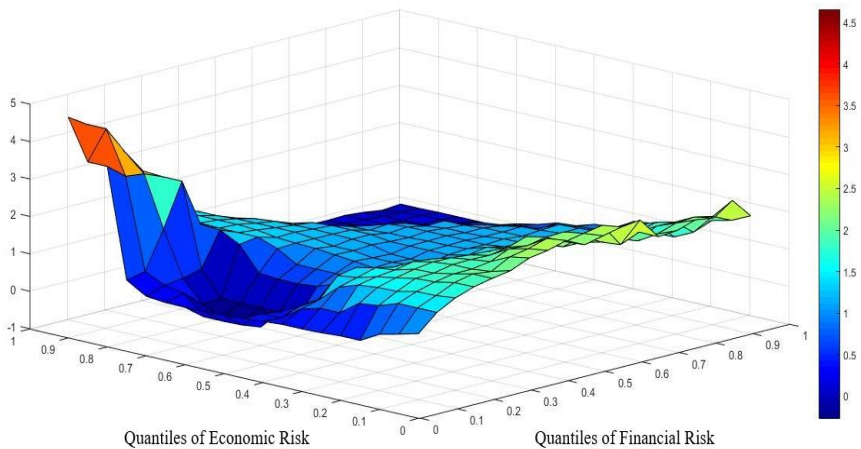
Figure 1a depicts the impact of economic risk on financial risk in Turkey. The influence of economic risk on financial risk is positive at low quantiles of economic risk (0.1–0.2) and upper quantiles of financial risk (0.70–0.95). Moreover, the effect of economic risk on financial risk is positive at medium and high quantiles of economic risk (0.4–0.95) and upper and lower quantiles of financial risk (0.70–0.95), though in the medium quantiles (0.35–0.70) and medium quantiles of financial risk (0.35–0.70), the influence of economic risk on financial risk is slightly negative. In summary, the influence of economic risk on financial risk is positive which implies that an upsurge in economic risk impacts financial risk positively. Figure 1b depicts the impact of financial risk on economic risk in Turkey. The influence of financial risk on the economic risk is strongly positive at low quantiles of economic risk (0.1–0.25) and upper quantiles of financial risk (0.70–0.95). However, in quantiles (0.25–0.35), financial risk influences economic risk negatively at higher quantiles (0.5–0.8) of economic risk which implies that an increase in financial risk decreases economic risk. Furthermore, the influence of financial risk on economic risk is positive at middle and higher quantiles (0.4–0.95) of financial risk and middle and upper quantiles (0.4–0.85) of economic risk. In summary, the effect of financial risk on economic risk is positive. Additionally, the outcomes show a feedback influence of financial risk and economic risk in Turkey.

Figure 2a depicts the impact of economic risk on political risk in Turkey. The influence of economic risk on political risk is negative and weak at low quantiles of economic risk (0.1–0.35) and upper quantiles of political risk (0.70–0.95). However, in the middle and high quantiles (0.4–0.95), economic risk influences political risk positively at higher quantiles (0.7–0.95) of political risk which implies that an increase in economic risk increases political risk. In summary, the impact of economic risk on political risk is positive. Figure 2b illustrates the influence of political risk on economic risk in Turkey. The influence of political risk on economic risk is positive at low quantiles of economic risk (0.1–0.2) and upper quantiles of political risk (0.80–0.95). However, in quantiles (0.25–0.35), political risk influences economic risk negatively at higher quantiles (0.7–0.95) of economic risk which

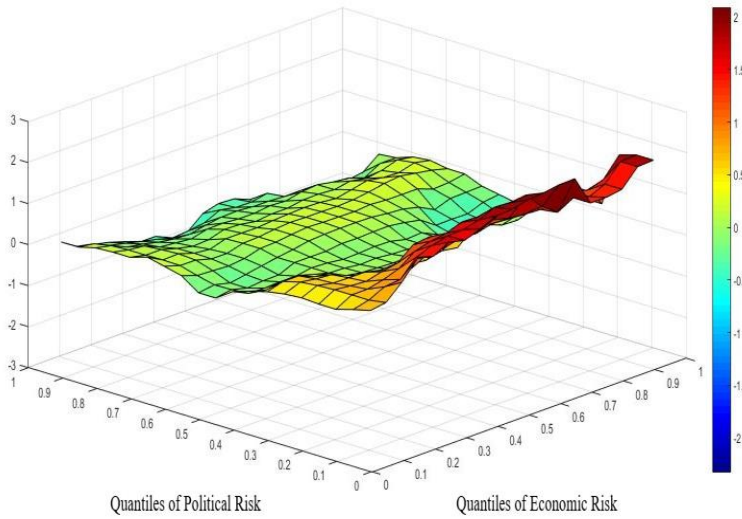
implies that an increase in political risk decreases economic risk. Moreover, the influence of political risk on economic risk is positive at middle and higher quantiles (0.4-0.95) of political risk and lower and middle quantiles (0.1-0.6) of economic risk. In summary, the impact of political risk on economic risk is positive. Additionally, the outcomes show a feedback influence of political risk and economic risk in Turkey.



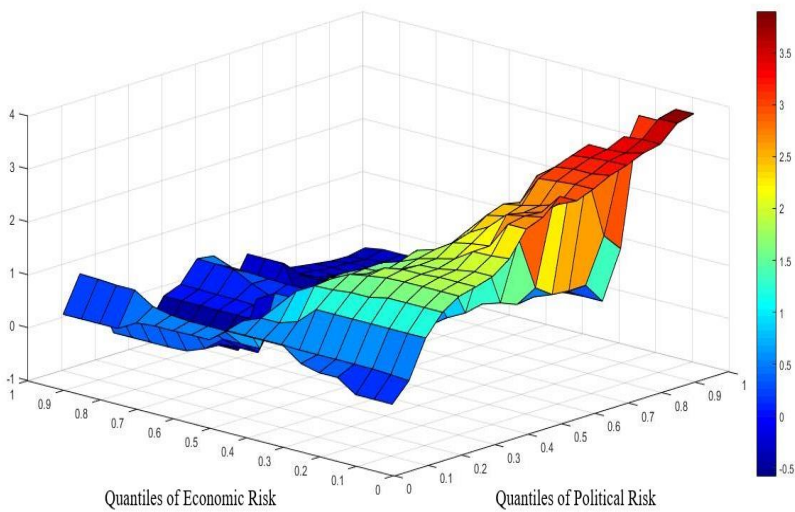
**Figure 1a:** Impact economic risk on financial risk



**Figure 1b:** Impact of Financial Risk on Economic Risk



**Figure 2b:** *Impact of Economic Risk on Political Risk*



**Figure 2b:** *Impact of Political Risk on Economic Risk*

To capture the causal association between economic risk, political risk, and financial risk, the present study utilized the quantiles Granger causality test. The advantage of the quantiles' causality test is that it captures causality in each quantile. The outcomes of the quantile Granger causality are depicted in Table 3. The outcomes of the Granger causality test revealed bidirectional causality between economic risk and political risk, financial risk and political risk, and financial risk and political risk in the 0.25 quantiles. Furthermore, in the 0.5 quantiles, there is evidence of one-way causality from economic risk to political risk and from

economic risk to financial risk. Besides, in the 0.75 quantiles, there is bidirectional causality between political risk and economic risk, one-way causality from economic risk to financial risk, and unidirectional causality from economic risk to financial risk. In summary, political risk and financial risk can predict economic risk

**Table 3: Granger Causality in Quantiles**

Direction of Causality	0.25	0.5	0.75	0.95
FR → ER	0.009804	0.156863	0.196078	0.127451
ER → FR	0.009804	0.009804	0.009804	0.803922
FR→PR	0.009804	0.156863	0.196078	0.127451
PR→FR	0.009804	0.421569	0.009804	0.166667
ER→PR	0.009804	0.009804	0.009804	0.803922
PR→ER	0.009804	0.421569	0.009804	0.166667

#### 4.2. DISCUSSIONS

This section provides a robust discussion based on the findings above. The outcomes of the quantile on quantile effect of economic risk on financial risk in Figure 1a illustrate positive interconnection between financial risk and economic risk for Turkey. This implies that an upsurge in economic risk exerts a positive and significant impact on financial risk in Turkey. On the other side, the outcomes of the quantile on quantile effect of financial risk on economic risk in Figure 1b demonstrates that financial risk influences economic risk positively in Turkey. Therefore, an upsurge in financial risk exerts a positive and significant impact on economic risk in Turkey. These outcomes are consistent with the studies of Stolbov and Shchepeleva (2016) for Brazil and Kondo et al. (2020) for South American countries who established a positive linkage between financial risk and economic risk. These findings highlight the significance of financial stability in achieving a secure economic condition in Turkey. More recently, the fall in Turkish currency relative to the US dollar caused a rise in uncertainty concerning economic recovery of Turkey between 2017 and 2020. As a result, policymakers should aim to preserve economic stability (mitigate economic uncertainty) via successful macro-prudential and economic policies, therefore reducing the possible consequences of financial stress and structural risks in the nation (Kondo et al. 2020; Kirikkaleli, 2020).

Furthermore, the outcomes of quantile on quantile effect of economic risk on political risk in Figure 2a illustrates a positive interconnection between political risk and economic risk in Turkey. This demonstrates that the economic instability in Turkey is having a detrimental impact on political stability. On the other hand, the influence of political risk on economic risk. This outcome illustrates a feedback association between economic risk and political risk in Turkey between the periods of study. Political uncertainty is clearly a major factor responsible for economic risk in Turkey. We actively urge Turkish policymakers to achieve political stability and improve Turkey's foreign ties with external creditors and other countries. As a result, it will be possible to find long-term macroeconomic and financial alternatives to the

present crisis. According to a recent survey, political risk in Turkey is a major triggering factor for economic risk, emphasizing the significance of ensuring political stability in Turkey to ensure long-term financial development and economic growth. This finding is consistent with the findings of Kirikkaleli and Onyibor (2020), Kirikkaleli, (2020), and Pastor and Veronesi (2013). The findings from the Granger quantile causality also give credence to the outcomes of the quantile-on-quantile regressions. Based on these observations, we propose that Turkey's policymakers reduce political and financial uncertainties to either boost the business climate or stimulate economic growth.

## 5. CONCLUSION AND POLICY DIRECTION

Over the last 2 decades, Turkey has have faced multiple domestic and global crises while simultaneously achieving substantial financial development and economic growth. Thus, this present study adds to the on-going literature by examining the influence of financial risk and political risk on economic risk in Turkey using quarterly data spanning between 198Q1 and 2018Q4. To the authors' understanding, no prior study has examined these associations' utilizing the novel quantile-on-quantile (QQ) and Granger quantile causality approaches. Thus, the present study fills the gap in the prior studies. The Q-Q approach is characterized by its capability to incorporate the fundamentals of quantile regression and non-parametric estimation research. As a result, the method appears to transform the quantile of one parameter into another, and the results have the opportunities to resolve questions about the interconnection between economic risk, political risk, and financial risk at both lower and higher quantiles of time series data. The findings from the BDS tests revealed that all the variables do not conform to normal distribution. Furthermore, the outcomes of the QQ regression illustrated that: (i) the influence of economic risk on political risk is positive; (ii) the influence of political risk on economic risk is positive; (iii) the influence of economic risk on financial risk is positive; and (iv) influence of financial risk on economic risk is positive. Moreover, outcomes of the Granger quantile causality test revealed; (i) bidirectional causality between economic risk and political risk, financial risk and political risk, and financial risk and political risk in the 0.25 quantiles; (ii) In the 0.75 quantiles, there is bidirectional causality between political risk and economic risk, one-way causality from economic risk to financial risk, and unidirectional causality from economic risk to financial risk. In summary, political risk and financial risk can predict economic risk.

Based on the obtained findings, the present study suggests the followings; (i) Policymakers should focus on the exchange rate, international debt, trade, and liquidity which are likely to impact Turkey's economic risk levels; therefore, these indicators must be regulated in order to mitigate Turkey's economic risk; (ii) We actively urge Turkish policymakers to achieve political stability and improve Turkey's foreign ties with external creditors and other countries. As a result, it will be possible to find long-term macroeconomic and financial alternatives to the present crisis; (iii) Policymakers can also monitor the essential parts of the political risk

index, including government stability, and law and order, internal and foreign tensions, expenditure profiles, bureaucratic efficiency, religious and ethnic issues, democratic accountability and socioeconomic conditions, to prevent potential vulnerabilities in macro-dynamics. While this analysis offers solid and clear observational results for Turkey, future studies should examine ways to progress this claim by concentrating on various global regions and adding more control variables such as inflation, interest rate, and exchange rate which will aid illuminate the magnitude and depth of this association. Furthermore, unavailability of data beyond the study period is a major limitation.

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