



**COVID-19'UN İSLAMİ VE GELENEKSEL HİSSE
SENEDİ ENDEKSLERİ ÜZERİNDEKİ ETKİSİ**

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Atatürk Üniversitesi Lisansüstü Eğitim ve Öğretim Uygulama Esaslarının ilgili maddelerine göre hazırlamış olduğum "COVID-19'UN İSLAMİ VE GELENEKSEL HİSSE SENEDİ ENDEKSLERİ ÜZERİNDEKİ ETKİSİ " adlı tezin/raporun tamamen kendi çalışmam olduğunu ve her alıntıya kaynak gösterdiğimi taahhüt eder, tezimin/raporumun kâğıt ve elektronik kopyalarının aşağıda belirttiğim koşullarda saklanmasına izin verdiğimi onaylarım.

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ABSTRACT**Ph. D. DISSERTATION****IMPACT OF COVID-19 ON ISLAMIC AND CONVENTIONAL STOCK INDEXES****Almabrok F AHMID****Advisor: Assoc. Prof. Dr. Ensar AĞIRMAN****2022, 98 Pages****Jury: Prof.Dr. Turan ÖNDEŞ****Assoc. Prof. Ömer ALKAN****Assoc. Prof. Dr. Ensar AĞIRMAN****Assoc. Prof. Dr. Ersin KORKMAZ****Assist. Prof. Dr. Durmuş YILDIRIM**

The objectives of this research are to study Islamic stock indexes during the time of Covid-19 extensively and compare it with conventional stock indexes. Our research aims to analyse how stock returns indexes of Islamic and conventional have been affected by COVID-19. So, in other word, the research objected to analyse the effect of COVID-19 on the returns and volatility of Islamic and conventional stocks indexes by using ARIMA-X and EGARCH-X models. In keeping with this objective, the Islamic and conventional stocks indexes were used to estimate the financial stock return, and the dummy variable as of number of everyday cases of each country was used to estimate the effect of COVID-19.

The study examines the uncertainty and volatility of both Islamic and conventional stock indexes before, during the Covid-19 crisis. In addition to comparing Islamic stock markets with others and the impact of this pandemic on them. We found that the result was statistically significant at 10%, 5% and 1% respectively for some of the indexes.

By overall looking we can say that Nigerian indexes were affected the most among others which include the Islamic and the conventional, moreover the least affected by the uncertainty was in Indonesia and Malaysia and the Islamic indexes in general were better. And maybe because of the Shariah standers of the Islamic indexes. We can conclude that Islamic stock indexes were affected like others by the COVID-19, even thought it was better in some countries and that might be because of the general condition of the country itself or maybe because of the Islamic standers in some indexes.

Keywords: Islamic stock indexes, COVID-19, ARIMA-X model, EGARCH-X model.

ÖZET**DOKTORA TEZİ****COVID-19'UN İSLAMİ VE GELENEKSEL HİSSE SENEDİ ENDEKSLERİ
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Bu araştırmanın amacı, Covid-19 döneminde İslami hisse senedi endekslerini kapsamlı bir şekilde incelemek ve geleneksel hisse senedi endeksleriyle karşılaştırmaktır. Araştırmamız İslami ve konvansiyonel hisse senedi getiri endekslerinin COVID-19'dan nasıl etkilendiğini analiz etmeyi amaçlamaktadır. Başka bir deyişle, araştırma, COVID-19'un İslami ve konvansiyonel hisse senedi endekslerinin getirileri ve oynaklığı üzerindeki etkisini ARIMA-X ve EGARCH-X modellerini kullanarak analiz etmeye itiraz etti. Bu amaç doğrultusunda, finansal hisse senedi getirisini tahmin etmek için İslami ve geleneksel hisse senedi endeksleri kullanıldı ve COVID-19'un etkisini tahmin etmek için her ülkenin günlük vaka sayısı itibarıyla kukla değişken kullanıldı.

Çalışma, Covid-19 krizi öncesinde hem İslami hem de konvansiyonel hisse senedi endekslerinin belirsizliğini ve oynaklığını inceleyecek. İslami borsaları diğerleriyle karşılaştırmanın yanı sıra bu pandeminin onlar üzerindeki etkisi. Sonucun bazı indeksler için sırasıyla %10, %5 ve %1 oranlarında istatistiksel olarak anlamlı olduğunu bulduk. Genel olarak bakıldığında, İslami ve konvansiyonel endeksler arasında en fazla Nijerya endekslerinin etkilendiğini, ayrıca belirsizlikten en az etkilenenin Endonezya ve Malezya'da olduğunu ve genel olarak İslami endekslerin daha iyi olduğunu söyleyebiliriz. Ve belki de İslami endekslerin şariatçıları yüzünden. İslami hisse senedi endekslerinin COVID-19'dan diğerleri gibi etkilendiğini, hatta bazı ülkelerde daha iyi olduğunu düşündüğünü ve bunun ülkenin genel durumundan veya bazı endekslerdeki İslami duruşlardan kaynaklanabileceğini söyleyebiliriz.

Anahtar Kelimeler: İslami hisse senedi endeksleri, COVID-19, ARIMA-X modeli, EGARCH-X modeli.

GENİŞ ÖZET

Dünya Sağlık Örgütü (WHO), 11 Mart 2020'de korona virüs (COVID-19) salgını küresel bir pandemi olarak resmen sınıflandırdı. Teyit edilen vaka sayısı 27 Mart 2020 itibariyle 81 milyonu aşmıştı (WHO, 2020). ABD'de teyit edilen vakalar da dahil olmak üzere, pandemiden etkilenen ülke sayısı 220'ye ulaştı. Salgının toplum sağlığı olduğu kadar, ülke ekonomileri üzerinde de büyük bir etkisi olduğu açık bir gerçektir. Birçok ülkenin ekonomik faaliyetleri, sıkı karantina düzenlemelerinin benimsenmesinin bir sonucu olarak kısa vadede ciddi şekilde kısıtlanmıştı. Pandeminin uzun vadeli etkileri arasında yaygın hastalık ve ekonomik çöküş yer almaktadır. Turizm ve havacılık gibi bazı sektörlerde kuşkusuz pandeminin oluşturduğu olumsuz durumdan etkilenmişlerdir. Dünya ekonomisi üzerindeki kesin etkileri hala belirsiz olsa da, finansal piyasalar da pandeminin oluşturduğu etkilere tepki göstererek ciddi düşüşler yaşamıştır. ABD borsasının devre kesici mekanizmasının Mart 2020'de on günde dört kez devreye girmesi pandeminin oluşturduğu olumsuz etkinin belki de en çarpıcı göstergesiydi.

İlk olarak Ocak 2020'de ortaya çıkan Covid-19 pandemisi, küresel olarak finans piyasaları üzerinde olumsuz büyük bir etki oluşturmuştur. S&P Global Ratings, 1 Mart ile 7 Eylül 2020 arasında yaklaşık 335 banka ve banka dışı finansal işletmenin notunu düşürmüştür. S&P Global Ratings'e göre, birincil bankacılık sektörleri 2023 veya daha sonrasına kadar Covid-19 öncesi seviyelerine çıkması öngörülmemektedir (Gunning ve diğerleri, 2020).

İslami finansal hizmetler piyasası, özellikle etik ve sosyal yatırımların daha fazla sistem geliştirici araç olarak önemini ortaya koyan mortgage finansal krizinden sonra tüm ülkelerde hızlı bir büyümeye ve artan ilgiye tanık olmaktadır. İslami finans, 1960'larda Müslüman ülkelerde dine olan ilginin yeniden canlanması ve petro-dolar Körfezi ülkelerinde döviz miktarlarının aşırı birikmesi sayesinde ortaya çıkmıştır. Ardından göç ve yanı sıra etik temelli bir sisteme duyulan ihtiyaç nedeniyle hızla uluslararası bir hal almıştır.

İslami fıkha göre meşru iş kavramının artan gelişimi ve Müslümanların işlerini dini inançlarıyla uyumlu bir şekilde yürütme konusundaki farkındalıkları ile birlikte, islami duyarlılığa sahip yatırımcılar, şariat kurallarını uygulayan ve bunlara saygı duyan şirketlere veya borsalara yatırım yapma eğilimindedirler. Ayrıca, İslami varlıklar riskten

kaçınan yatırımcılar için güvenli bir liman haline geldiğinden, İslami varlıklara yatırım yapmak için artık dini inançlar tek neden değildir. Mortgage krizi üzerine çok fazla araştırmalar yapılmış olmakla birlikte, İslami finansal varlıkların kriz karşısında dayanıklılığı konusu daha sonra göstereceğimiz gibi birçok çalışmada öne çıkmıştır. İslami finansı reel ve finansal yönüyle ilişkilendirmek, onun sağlamlığını sağlayan derin köklere sahip olmasını sağladı, hatta birçok kurum için finansal başarısızlık zincirlerinden bulaşma dalgasını bozdu. Örneğin, Abdul-Rahman ve Gholami (2020), ekonominin ve işletmelerin COVID-19 ekonomik krizinden toparlanmasına yardımcı olmak için Kar-Zarar Paylaşım Sözleşmesini (PLSC) bir finansman aracı olarak kullanarak İslami finansın güzelliğini ortaya çıkarmıştır.

Buna ek olarak, Covid-19 salgını başladıktan sonra Bella (2020), İslami bir akran işletmeler arası (P2P) olarak adlandırılabilen bir kredi ağı aracılığıyla MSE finansmanını birkaç şirket kategorisine ayırarak yeni bir plan oluşturmaya çalışmıştır. Bu yöntem, işletmelerin nakit elde etmesini kolaylaştıracaktır. Ayrıca, Sikiru ve Salisu (2020), Asya-Pasifik İslami borsasının (UPE), pandemi ve salgın hastalıkların getirdiği riske karşı yararlı bir korunma olup olmayacağı üzerine fikirler ortaya koymuşlardır. UPE için yeni bir veri kümesine güvenerek, ancak COVID-19 salgını sırasında koruma etkinliğini azaltarak Asya-Pasifik İslami hisse senetlerinin UPE'ye karşı korunma kapasitesini destekleyen kanıtlar ortaya koymuşlardır. Ek olarak, elde edilen sonuçlar UPE tahmin edicisinin uygulanmasının, hisse senedi getirilerinin örnek dışı tahminlerini iyileştirdiğini göstermektedir.

Ayrıca, Gwadabe ve Ab Rahman (2020), COVID 19 pandemisinin ekonomik etkisinin üstesinden gelmek için vakıf temelli ekonomik refah, sosyal güçlendirme ve gençlerin ekonomik refahının güçlendirilmesinde modern dünyada İslami finansın olası rollerini araştırmışlardır. Çalışmanın bulguları, vakıf temelli ekonominin, küçük ve orta ölçekli işletmeleri finanse ederek Kano Halkına gençleri güçlendirme ve ekonomik güvenlik sağlayabilen bir tür hayırsever İslami güçlendirme olduğunu göstermiştir. Çalışma, finansal istikrarın sağlanması ve Maqasid Şariat'ın uygulanması için COVID 19 döneminde ve sonrasında ekonomik engellerin üstesinden gelmek için vakıf temelli ekonomik yöntemlerin kullanılabileceği sonucuna varmıştır.

Mevcut çalışma, salgından etkilenen ülkelere pandemi nedeniyle ortaya çıkan ekonomik krizde başarılı bir şekilde hayatta kalmalarına yardımcı olmak için İslami finansı potansiyel bir strateji olarak kullanılmasını önermektedir. Ek olarak, pandeminin getirdiği mali zararı azaltmak için bu hizmetlerin çeşitli aşamalarda nasıl verimli bir şekilde kullanılabileceğini incelemektedir.

Şeriat Uyumlu Paylar

İslami duyarlılığa sahip yatırımcıların, borsada işlem gören anonim şirketlerde hisse sahibi olmasını sağlayacak bir çözüm bulmak için, 1987 yılında Şeyh Muhammed el-Tayyib el-Najjar ve Pakistan'dan Muhammed Taki Usmani liderliğindeki bir grup bilim adamı, yatırım yapılabilecek hisse senetleri için tarama kriterlerini belirlemişlerdir. Takımın diğer üyeleri Türkiye'den Salih Tag ve Muhammad Taqi Usmani'idi. İnternet balonu birçok genç Müslümanı, büyük getirilerden yararlanmak için ailelerinin servetini kullanarak borsada ticaret yapmaya çektikten sonra, 1990'larda hisse senedi gözetim fetvası verildi.

Şeriat'a uygun hisse senedi seçiminde ki en önemli standart 20 Mayıs 2004'te yayınlandı ve bu standart Uluslararası Muhasebe ve Denetim Kurumu için Şeriat Gösterge Standardı olarak bilinmektedir. Standart, faiz veya diğer yasadışı faaliyetlerle uğraşan işletmelere yatırım yapılmasına genellikle izin verilmediğini, ancak belirli koşullar altında bir muafiyet yapıp hisse senetlerine yatırım yapmanın mümkün olduğunu söylemektedir. Standart ile ilgili temel koşullar aşağıda kısaca özetlemektedir. Buna göre;

- Tüm şeriat inceleme metodolojileri için ilk standart, yatırım yapılacak olan hisse senedi sahibi firmaların alkol, domuz ürünleri, geleneksel finansal hizmetler (bankalar ve sigorta şirketleri gibi), eğlence (kumarhaneler, kumar), tütün vb. faaliyet alanlarında olmamasıdır. Bu sektörler dışında ana faaliyet alanı Şeriat'a uygunsa, bazı ikincil faaliyetler olmasa da inceleme, bu ikincil faaliyetlerin kabul edilebilir parametreler dahilinde olup olmadığına dönmektedir.
- İkinci standart, nicel veya mali incelemeyi iki şekilde içerir:
 - İlk yaklaşım, şirketin ana varlıklarının çoğunlukla nakit veya nakit ile ilgili olmamasını sağlamaktır. Şirketin ana varlıkları nakit bazlı ise ve şirketin ana varlıkları kredili borç şeklinde olmamalıdır.

- İkinci strateji, işletmenin aşağıdaki gibi izin verilen limiti aşan faizle ilgili faaliyetlerde bulunmadığından emin olmaktır.
 - Faizli menkul kıymetlerdeki mevduattaki nakit, Şirket'in tüm özkaynaklarının piyasa değerinin yüzde otuzunu (%30) aşamaz.
 - Tefeci borcu şirketin piyasa değerinin %30'unu geçmemelidir.
 - Likit olmayan varlıkların toplam piyasa değeri, varlıkların toplam piyasa değerinin %30'unu geçmemelidir.

Ayedh ve arkadaşlarına (2019) göre İslami sermaye piyasası, hisselerin Şariat analizi ile desteklenmektedir. Hisseler için iyi bir standart oluşturmanın anahtarı, verimli ve uygulanabilir bir Şariat değerlendirme tekniğine sahip olmaktır. Bu standarda göre hisselerin akıbeti Şariata uygun olup olmadıklarına göre belirlenir.

Şariat Uyumu ve Risk Alma

Analitik ve ampirik çalışmalar, İslami Şariat ile uyumluluğun, sermaye piyasasında şirketler için makro ve mikro düzeyde riskleri azaltabilecek bir dizi önemli faydaya yol açabileceğini göstermektedir. Bu faydalar;

- Yatırımcılar için çeşitlendirme olanaklarını geliştirerek likiditeyi artırmak ve bankalar dışında biriken tasarruflara dini inançlar nedeniyle erişimi kolaylaştırmak ve onları verimli yatırımlara yönlendirmektir. Bu, piyasaların likiditesini iyileştirmekte ve yatırımcı tabanını genişletmektedir. Piyasaların likiditesinin iyileştirilmesi ve yatırımcı tabanının genişletilmesi risk paylaşımını artırmakta ve sermaye maliyetini düşürmektedir.
- Yönetimin sahip olduğu bazı bilgilerin kimse tarafından bilinmemesi ve bu bilgilerin kişisel çıkarlar için kullanılması sonucunda ortaya çıkan yönetim ve paydaşlar arasındaki bilgi asimetrisi, Şariat'ın amaçlarına aykırıdır ve şariat hükümleri firmaya ait tüm bilgileri ifşa etmeye zorlamaktadır. İslami piyasaların ulaşabildiği en önemli şey budur. Finansal teorinin en önemli hedefleri olan güçlü bir verimlilik düzeyi de bu şekilde kolaylıkla sağlanabilecektir (Hearn ve diğerleri (2012)).
- Faiz ve aldatmayı yasaklayan, getirileri paylaşan ve finansal yatırımı gerçek yatırımla ilişkilendiren İslami finans ilkeleri, şirketin finansal piyasalardaki

dalgalanmalarla yüzleşmesini sağlayan sağlam temellerin benimsemesine olanak tanımaktadır.

- Borç miktarındaki kısıtlama, Şeriat uyumlu bir şirketin riskini azaltabilir, çünkü yüksek borç seviyeleri aslında şirketin işletme ödemelerini karşılama kabiliyetini sınırlar. Bu, Şeriata uyumlu şirketi, özellikle nakit ve sermaye harcamaları açısından daha rasyonel olmaya teşvik edebilir ve bu da, şirketi özellikle dışsal şoklara karşı daha dayanıklı kılan daha güçlü bir nakit rezervi yaratılmasına yol açar. Bununla birlikte, borç miktarını sınırlamak, şirketi operasyonlarını ve yatırımlarını özkaynak ve nakit seviyelerinde daha fazla finanse etmeye zorlayabilir, bu da nakit rezervini azaltır ve daha az esnek hale getirir. Ayrıca şirketin yatırımlarında daha dikkatli olması ve sadece şirkete en fazla değer katan projeleri seçmesi gerekir. Sonuç olarak, şirketin riski azaltılabilir. Şirketin çeşitli operasyonel yönleri arasındaki bu karmaşık ve önemli ilişkiler deneysel olarak incelenerek ortaya konulmuştur Cheong (2021).
- Spekülatif işlerin ve yüksek riskli yatırımların şeriat tarafından yasaklanması, gerçek faaliyetlerinden beklenen getirileri kabul edilebilir bir risk seviyesinde tutmaktadır. Bu riskin gerçekleşme olasılığını belirlemek kolay olabilir, böylece önemli sapmalar olmaz. Beklenen ve gerçekleşen getiriler arasında risk derecesini azaltır. Öte yandan, şirketi ek kazançlar elde etme fırsatından mahrum edebilir.
- Nakit tutma üzerindeki kısıtlamalar, şirketlerin etkili yatırım kararları almalarına yardımcı olur, çünkü şirketlerin yöneticileri kişisel kazanç için yatırım yapabilecekleri fazla parayı biriktirmelerini engeller, bu da yöneticiler daha az fırsatçı davranma eğiliminde oldukları için acente anlaşmazlıklarını azaltır. Üçüncü finansal oran, mevcut nakit miktarı ile ilgilidir. Şirkette, oran ne kadar düşükse, şirketin büyük sermaye harcamalarını finanse edemediğini ve daha fazla projeyi finanse edemediğini gösterir. Ancak, nakit fazlası olması durumunda yatırımcıların karları manipüle etmelerini kısıtlar. Ahmed ve Farooq (2018).
- İslami finansman, aracı maliyetlerini ve riskli yatırım oranını azaltmak için uygun bir alternatiftir, bu da işletmelere finansman sağlayan bankalar için daha finansal riski azaltılması anlamına gelmektedir (Minhat ve Dzolkarnaini (2017)).

Covid-19

Trajik bir şekilde, hepimiz artık COVID-19 pandemisinin sürekli olarak artan yüksek ölüm oranının farkındayız. Hepimiz ayrıca krizin nihayetinde ekonomiyi nasıl etkileyeceği, özellikle de finansal piyasaları nasıl etkileyeceği konusunda endişeliyiz. Bu pandemi, bu tezin yazıldığı tarih itibarıyla hala mevcuttur ve nihai felaketin ne kadar şiddetli olacağı belirsizdir. Bu nedenle tezimizin konusu "COVID 19 Döneminde İslami Hisse Senedi Piyasalar" oluşturmaktadır.

İslami finansman ilk olarak 50 yıl önce, finansal kaynaklarının Şeriat kanunlarına ve İslami ilkelere uygun olup olmadığından emin olmak isteyen büyük Müslüman nüfusa sahip ülkelerde ortaya çıktı. İslami finans, sektöründeki toplam 2,88 trilyon ABD Dolar tutarındaki varlıklarla 2009'daki küresel mali krizden bu yana kaydedilen en büyük artışını yaşadı. Bu rakamların 2024 yılına kadar 3,69 trilyon ABD Dolarına yükselmesi bekleniyor. Müslüman ulusların sermaye susuzluğunu gidermek için Şeriat finansmanına yönelmesinin yanı sıra, popülerliğine katkıda bulunan bir diğer faktör de Şeriat finansmanının başlıyor olmasıdır. Moody's Investors Service ayrıca, özellikle Körfez İşbirliği Konseyi (GCC) bölgesinde ekonomik toparlanma hızlandığında İslami finans 2022'de büyümeye devam edeceğini raporlamıştır.

Araştırmanın amacı:

İslami finans sektörü sahada kendini ortaya koyuyor. Bu endüstrinin sahip olduğu avantajlar ve İslami Şeriat hükümlerine ve standartlarına olan güveni nedeniyle küresel ekonomik arenada büyük bir varlık elde etti.

Bu başarının temel kaynaklarından biri de İslami endekslerin oluşturulmasıdır. Yatırımcının helale yönelik yatırımlar yapmak istemesinin bir sonucu olarak, birçok İslami ve hatta uluslararası ülkede çeşitli İslami endeksler ortaya çıktı ve bunlar dünyanın diğer ülkelerinde hala incelenmektedir.

Bu endekslerin oluşturulmasındaki temel amaç, borsadaki aracı ve yatırımcılara, endekslere yatırım yaparken bağlı oldukları meşru vizyon doğrultusunda piyasanın imkan ve olanaklarından yararlanmalarını sağlayacak bilgileri sağlamaktır. Bu endeksler aynı zamanda mevcut alanları öne çıkararak İslami finans yatırımlarını piyasaya çekmeyi amaçlıyor. Ayrıca yabancı yatırımları İslam ekonomisinin avantajlarıyla tanıştırmayı amaçlamaktadır.

Bu indeksler, yukarıda belirtildiği gibi belirli kriterlere bağlanmıştır. Bu indeksler, bu standartlara dayalı olarak yayınlanmıştır.

Bu araştırmanın amacı, Covid-19 döneminde İslami hisse senedi endekslerini kapsamlı bir şekilde incelemek ve geleneksel hisse senedi endeksleriyle karşılaştırmaktır. Araştırmamız İslami ve konvansiyonel hisse senedi getiri endekslerinin COVID-19'dan nasıl etkilendiğini analiz etmeyi amaçlamaktadır. Başka bir deyişle, araştırma, COVID-19'un İslami ve konvansiyonel hisse senedi endekslerinin getirileri ve oynaklığı üzerindeki etkisini ARIMA-X ve EGARCH-X modellerini kullanarak analiz etmeyi amaç edinmektedir. Bu amaç doğrultusunda, finansal hisse senedi getirisini tahmin etmek için İslami ve geleneksel hisse senedi endeksleri kullanıldı ve COVID-19'un etkisini tahmin etmek için her ülkenin günlük vaka sayısı kukla değişken olarak kullanıldı.

Araştırma, Maki (2012)'nin toplam Covid-19 vakalarını günlük veri olarak kullanan eşbütünleşme testi ve diğer yazarlarla (Gao ve diğerleri (2022), Anh ve Gan (2020), Ashraf (2020), Khan ve diğerleri (2020), Ashraf (2021), Öztürk ve diğerleri (2020), Nguyen ve diğerleri (2021) ve Rabhi (2020)) aynı COVID-19 yeni vakalarını kullandıkları ile benzer verilerle uygulamalar gerçekleştirildi.

Çalışma, önce Covid-19 krizi sırasında hem İslami hem de konvansiyonel hisse senedi endekslerinin belirsizliğini ve oynaklığını inceledi. İslami borsaları diğerleriyle karşılaştırmamızın yanı sıra pandeminin endeksler üzerindeki etki incelenmektedir. Bu gibi durumlarda geleneksel sistem yerine İslami finans ve bankacılık çözüm mü? Bazı makalelerde ortaya konulduğu gibi, İslami finans sistemi krizler sırasında güvenli bir liman mıdır? Sorularına bu araştırma ile yanıt aranmaktadır.

Yukarıdakilere dayanarak, araştırma problemi aşağıdaki noktalarla sınırlandırılabilir:

1. İslami borsa endeksleri Covid-19 döneminde Konvansiyonel borsa endekslerinden daha fazla mı yoksa daha az mı etkilendi?
2. İslami hisse senedi piyasaları endekslerinin belirsizliği ve oynaklığı geleneksel borsa endekslerinden daha fazla mı yoksa daha az mı?

Araştırmada İslami hisse senedi endeksleri alanında COVID-19'un etkisini analiz etmek için kullanılan İslami ve konvansiyonel hisse senedi endekslerinin günlük Logaritmik getirisi seçilmiştir. Buna ek olarak, 2 Aralık 2019'dan 22 Nisan 2022'ye kadar

COVIDI-19'dan önce başlayan veriler, bu nedenle fazla günleri verilerden çıkarmak için VLOOKUP işlevi kullanıldı. Veriler www.investing.com adresinden toplanmıştır. Endonezya, Malezya gibi 6 ülkeden 16 endeks seçilmiştir. Nijerya, Pakistan, Katar ve ABD'de 8 endeks şariat uyumlu endeks iken, 8 konvansiyonel endeks seçilmiş ve her endeks için gözlem sayısı tablo 3'de gösterilmiştir. Endeksler her ülkede İslami endeksler açısından seçilmiştir.

Table 3. The Selected Islamic and Conventional Indexes

Country	Islamic index	symbol	Conventional index	Symbol	Observations
Indonesia	Jakarta Islamic 70	JKII70	---	---	582
Indonesia	Jakarta Islamic	JKII	---	---	582
Indonesia	---	---	Jakarta Stock Exchange Composite Index	JKSE	582
Malaysia	FTSE Bursa Malaysia Hijrah Shariah	FTFBMH S	---	---	588
Malaysia	FTSE Bursa Malaysia EMAS Shariah	FTFBMS	---	---	588
Malaysia	---	---	FTSE Malaysia KLCI	KLSE	588
Nigeria	---	---	NSE 30	NGSE30	592
Nigeria	---	---	NSE All Share	NGSEINDEX	592
Nigeria	NSE Lotus Islamic	NGSELOTUS	---	---	592
Pakistan	All Shares Islamic Index of Pakistan	KMIAS	---	---	597
Pakistan	---		Karachi 100	KSE	597
Qatar	QE Al Rayan Islamic	QERI	---		597
Qatar			QE General	QSI	597
USA	Dow Jones Islamic Market International Titans 100	DJI100X	---	---	624
USA	---	---	S&P 500	SPX	624
USA	---	---	Nasdaq 100	NDX	624

Finansal serilerin analizi söz konusu olduğunda, diğer finansal serilerle karşılaştırmaya izin vermek için logaritmik getiriler genellikle alınır. Ayrıca, finansal varlıkların fiyat serisi statik değildir, bu nedenle seriyi sabit kılmak için birinci farkı benimsemeye devam ediyoruz, bu da verilen modelin parametrelerini tahmin etmeye izin veriyor (Hudson ve Gregoriou (2015)).

Zaman serisi varsayımlarıyla uyumlu verilerin kullanılması, zaman serisi analizi yaparken dikkate alınması gereken en önemli faktördür. Normal dağılım ve seri sabitliği bu varsayımlardan ikisidir. Bu çalışmada Dickey ve Fuller (1981) tarafından önerilen ADF testleri ve Phillips ve Perron tarafından önerilen PP testleri birim kök testini (1988) incelemek için kullanılmıştır. İslami ve geleneksel endeksler ve getiri serileri için birim kök testi bulguları ve tanımlayıcı veriler aşağıdaki Tablo 4-5-6-7-8-9'de gösterilmektedir.

Tablo 4-5-6-7-8-9'de gösterildiği gibi, ADF ve PP birim kök testleri İslami ve geleneksel endekslerin hiçbirinin seviye değerinde sabit olmadığını ortaya koymaktadır. Sabit olmayan serilerle analiz yapmak, zaman serisi analizinde farklı sonuçlar üretebilir. Sonuç olarak konvansiyonel ve İslami endeksler arasındaki ilk fark tespit edilmiştir. Getiri serisi İslami ve konvansiyonel endeksler düzeyi değeri ADF ve PP birim kök testleri, logaritmik birinci fark hesaplandıktan sonra %1 anlamlılık düzeyinde sabit olarak belirlenmiştir.

Table 4. Descriptive Statistics for Indonesia

	JKII	JKII70	JKSE
Mean	-0.002165	-0.000137	0.039347
Standard D.	1.596180	1.536165	1.255602
Skewness	0.476213	0.418385	0.246104
Kurtosis	12.93535	13.05070	13.49312
Jarque-Bera (Prob.)	2415.745*** (0.000)	2466.631*** (0.000)	2675.937*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-12.26368*** (0.000)	-12.07836*** (0.000)	-12.10733*** (0.000)
Phillips-Perron (PP) (Prob.)	-24.56118*** (0.000)	-24.22743*** (0.000)	-23.60153*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

1 Şekil 1'den şekil 16'ya her bir endeksin getirisinin grafiksel gösterimine bakarak, kritik değerlerin kaydedilmesiyle birlikte tüm göstergelerin çalışma periyotları boyunca sürekli dalgalanmalarını not ediyoruz, ancak genel olarak eğrilerde aynı eğilimi görüyoruz. , çünkü tüm göstergeler son zamanlarda yüksek oynaklık kaydetti. COVID-19 pandemisinin yayılmasıyla krizin başlangıcına işaret eden bir dönemde büyük bir dağılmanın ortaya çıkmasıyla ve buna bağlı olarak, her ülkedeki her bir endeksin, artan veya azalan ivme ile hemen hemen yan yana gittiği, ancak bir ülkeden diğerine durumun böyle olmadığı not edilmiştir. Örneğin Nijerya'da üç endekste volatilité çok yüksek ancak Endonezya ve Malezya'da durum böyle değil ve grafikler birbirine çok az farkla benziyor.

Testi tüm indeksler için çalıştırdıktan sonra, sonucun bazı indeksler için sırasıyla %10, %5 ve %1 oranlarında istatistiksel olarak anlamlı olduğunu ancak ABD, Pakistan ve 1 gibi bir ülkedeki indeksler için anlamlı olmadığını söyleyebiliriz. Test bize her bir endeksin belirsizliğini ve oynaklığını gösteriyor. Ayrıca, pozitif olan QSI indeksi dışında tüm sonuçlar negatiftir. Endonezya'da en çok etkilenen endeksin İslami endekslerden biri olmadığını, JKII'nin (-0.0000000000139) etkilediğini ve JKII70 endeksinin (-0.00000000014), JKSE endeksinden daha düşük olan (-0.0000000225) tarafından etkilendiğini görebiliriz. Buna ek olarak Malezya'da İslami endeks FTFBMS'den en az etkilenen (-0.0000000125) olduğu için durum böyleyken, İslami endekslerden biri ile konvansiyonel endeksin temsilcisi de hemen hemen aynı etkilenmiş, FTFBMS endeksi ise FTFBMS endeksi tarafından etkilenmiştir. Ancak Nijerya'da durum böyle değildi çünkü diğer iki ulusal endeksten daha az etkilenen ulusal endekslerden biri İslami olan ve İslami olanı temsil eden NGSEINDEX (-0.0000000678) ve NGSELOTUS endeksi daha az etkilenmişti. (-0.000000329) tarafından etkilenen NGSE30. son olarak, Katar'daki endeksin (0.000000113) olduğu QSI belirsizliği, diğerleri arasında sadece bunun gibi olan pozitif. Genel olarak bakıldığında, İslami ve konvansiyonel endeksler arasında en çok Nijerya endekslerinin etkilendiğini, ayrıca belirsizlikten en az etkilenenin Endonezya ve Malezya'da olduğunu ve genel olarak İslami endekslerin daha iyi olduğunu söyleyebiliriz.

Sonuçlar

İlk olarak Ocak 2020'de ortaya çıkan Covid-19 pandemisi, küresel olarak finans sektörü üzerinde önemli bir olumsuz etki oluşturdu. Elbette İslami hisse senedi piyasaları da Covid 19 pandemisinden olumsuz olarak etkilendi. İslami finansal hizmetler piyasası,

özellikle etik ve sosyal yatırımların daha fazla sistem geliştirici araç olarak önemini ortaya koyan mortgage finansal krizinden sonra tüm ülkelerde hızlı bir büyümeye ve artan ilgiye tanık olmaktadır.

Bir süre önce, dindar genç Müslümanlar bu hisselerin alım satımının kabul edilebilir olup olmadığını sorguladılar. İlk İslami hisse senedi endeksi 1999'da Malezya'da başlatıldı. Aynı yıl Şeriat'a bağlı işletmeleri belirlemek için Dow Jones İslami Endeksi kuruldu. Bu gelişme, varlık yöneticilerinin yeni ürünler üretme potansiyelini genişletmeye ve İslami ilkelere göre yatırım yapmak isteyen yatırımcılara yardımcı oldu.

İslami finansman ilk olarak 50 yıl önce, finansal kaynaklarının Şeriat kanunlarına ve İslami ilkelere uygun olup olmadığından emin olmak isteyen büyük Müslüman nüfusa sahip ülkelerde ortaya çıktı. İslami finans, sektöründeki toplam 2,88 trilyon ABD Dolar tutarındaki varlıklarla 2009'daki küresel mali krizden bu yana kaydedilen en büyük artışını yaşadı. Bu rakamların 2024 yılına kadar 3,69 trilyon ABD Dolarına yükselmesi bekleniyor. Müslüman ulusların sermaye susuzluğunu gidermek için Şeriat finansmanına yönelmesinin yanı sıra, popülerliğine katkıda bulunan bir diğer faktör de Şeriat finansmanının başlıyor olmasıdır.

İslami finans sektörü sahada kendini ortaya koyuyor. Bu endüstrinin sahip olduğu avantajlar ve İslami Şeriat hükümlerine ve standartlarına olan güveni nedeniyle küresel ekonomik arenada büyük bir varlık elde etti.

Bu başarının temel kaynaklarından biri de İslami endekslerin oluşturulmasıdır. Yatırımcının helale yönelik yatırımlar yapmak istemesinin bir sonucu olarak, birçok İslami ve hatta uluslararası ülkede çeşitli İslami endeksler ortaya çıktı ve bunlar dünyanın diğer ülkelerinde hala incelenmektedir. Bu araştırmanın amacı, Covid-19 döneminde İslami hisse senedi endekslerini kapsamlı bir şekilde incelemek ve geleneksel hisse senedi endeksleriyle karşılaştırmaktır. Araştırmamız İslami ve konvansiyonel hisse senedi getiri endekslerinin COVID-19'dan nasıl etkilendiğini analiz etmeyi amaçlamaktadır. Başka bir deyişle, araştırma, COVID-19'un İslami ve konvansiyonel hisse senedi endekslerinin getirileri ve oynaklığı üzerindeki etkisini ARIMA-X ve EGARCH-X modellerini kullanarak analiz etmeyi amaç edinmektedir. Bu amaç doğrultusunda, finansal hisse senedi getirisini tahmin etmek için İslami ve geleneksel hisse senedi endeksleri kullanıldı

ve COVID-19'un etkisini tahmin etmek için her ülkenin günlük vaka sayısı kukla değişken olarak kullanıldı.

Çalışma, önce Covid-19 krizi sırasında hem İslami hem de konvansiyonel hisse senedi endekslerinin belirsizliğini ve oynaklığını inceledi. İslami borsaları diğerleriyle karşılaştırmanın yanı sıra pandeminin endeksler üzerindeki etki incelenmektedir. Bu gibi durumlarda geleneksel sistem yerine İslami finans ve bankacılık çözüm mü? Bazı makalelerde ortaya konulduğu gibi, İslami finans sistemi krizler sırasında güvenli bir liman mıdır? Sorularına bu araştırma ile yanıt aranmaktadır.

Sonucun bazı endeksler için sırasıyla %10, %5 ve %1 oranlarında istatistiksel olarak anlamlı olduğunu, ancak ABD, Pakistan gibi bir ülkedeki ve Katar'daki endekslerden biri için anlamlı olmadığını bulduk. Genel olarak bakıldığında, İslami ve konvansiyonel endeksler arasında en fazla Nijerya endekslerinin etkilendiğini, ayrıca belirsizlikten en az etkilenenin Endonezya ve Malezya'da olduğunu ve genel olarak İslami endekslerin daha iyi olduğunu söyleyebiliriz.

İslami hisse senedi endekslerinin COVID-19'dan diğerleri gibi etkilendiğini, hatta bazı ülkelerde daha iyi olduğunu düşündüğünü ve bunun ülkenin genel durumundan veya belki de bazı endekslerin diğerlerinden daha fazla olduğu durumlardan kaynaklanabileceğini söyleyebiliriz.

Bu araştırmanın pandemi, islami endeksler ve diğer endeksler arasındaki araştırmaları oluşturan akademik boşluğu doldurduğuna ve hem Müslüman hem de gayrimüslim yatırımcılar için faydalı olduğuna inansak da gelecekte bu alan için ne kadar çok araştırma yapılması gerektiği gerçeğini de gözler önüne sermek istiyoruz. Ayrıca geleneksel bankalar veya Takaful gibi sigorta şirketleri, geleneksel sigorta şirketleriyle karşılaştırmalarını içerecek araştırmalarda gelecekte yapılmalıdır.

Bu araştırmanın sınırlılığı, COVID-19'un başlangıcında veri olmaması ve COVID-19'un henüz tam anlamıyla bitmemiş olması, bu nedenle geleceği tahmin etmenin zor olmasıydı. Ayrıca resmî tatiller gibi borsa endekslerinin açılışları tüm ülkeler için aynı olmadığı için bazı ülkeler için veriler eşit değildi, bu nedenle gözlem sayıları bir ülkeden diğerine değişiyordu. Bu gibi kısıtlar altında gerçekleştirmeye çalıştığımız araştırmanın literatüre katkı sunması ve diğer araştırmalara yol gösterici olması ise en büyük temennimizdir.

TERMS

GLOSSARY OF ISLAMIC TERMS

Sharia - Guidelines or law prescribed by Islamic scriptures

Sukuk - Shariah-compliant fixed income instruments (used as an alternative to conventional bonds)

Takaful - Shariah-compliant cooperative form of insurance

Halal - Means permissible. In the context of Shariah, any permissibility is referred to as 'Halal'

Fatwa - Shariah opinion or guidance issued by a Shariah scholar or a board of scholars on a specified matter

Qard - Loan

Mudarabah/Musharakah - Forms of partnership contracts between two entities for sharing profit and loss from the underlying investment or business activity

Wakalah - Form of an agency where the agent undertakes certain tasks for and on behalf of the principal for a fee and a performance incentive if mutually agreed

Murabahah - A sale contract where the seller is required to disclose the cost. Both buyer and seller agreed on the profit upfront and the sale price accordingly

Istisn'a - A sale contract for manufacturing, constructing or procurement of assets based on agreed specification, price and delivery date

Ijarah - A leasing contract adopted for both operating lease and financial lease

Salam - A sale contract for described fungible commodities where price is required to be paid upfront for delivery on a specified future date

Waqf - Creation of trust by endowment of assets for the benefit of a beneficiary or purpose including but not limited to public welfare and charitable causes

Source of the terms: were taken from: Dar Al Sharia Interna

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Erzurum-2022

Almabrok F AHMID

CHAPTER ONE

INTRODUCTION

The World Health Organization (WHO) formally classified the coronavirus (COVID-19) outbreak a global pandemic on March 11, 2020. The number of confirmed cases has topped 81 million as of 27 March 2020, and it is still increasing (WHO, 2020). There are around 220 afflicted countries, including the majority of confirmed cases in the US. The pandemic has obviously had a big impact on the economy. The economic operations of many countries are severely constrained in the short term as a result of the adoption of tight quarantine regulations. The pandemic's long-term effects could include widespread unemployment and economic collapse. There will be undoubtedly challenges in some businesses, like tourism and aviation. Even though the precise effects on the world economy are still unclear, the financial markets have already changed dramatically in response. The US stock market's circuit breaker mechanism was triggered four times in ten days in March 2020.

The Covid-19 pandemic, which initially surfaced in January 2020, has had a significant negative influence on the financial sector globally. S&P Global Ratings downgraded the ratings of around 335 banks and nonbank financial businesses between March 1 and September 7, 2020. According to S&P Global Ratings, the primary banking sectors won't recover to their pre-Covid-19 levels until 2023 or later (Gunning et al., 2020).

On the other hand, The Islamic financial services market is witnessing rapid growth and increasing interest in all countries, especially after the mortgage financial crisis, which highlighted the importance of ethical and social investments as more system-enhancing means. Islamic finance emerged in the 1960s thanks to a renewed interest in religion in Muslim countries and the accumulation of foreign exchange surpluses in the petrodollar Gulf, then was rapidly internationalized by immigration but also by the growing urgency and need for an ethics-based system.

With the increasing development of the concept of legitimate (Sharia) business and the awareness of Muslims to conduct their business in a manner consistent with their religious beliefs, they tend to invest in companies or stock markets that apply and respect

the rules of Sharia. Moreover, religious beliefs are no longer the only motive for investing in Islamic assets, as the latter has become a safe haven for the risk-averse investor. The mortgage crisis has shed a lot of ink, and the issue of the durability of Islamic financial assets in the face of the crisis has been prominent in many studies, as we will show later. Linking Islamic finance to the real and financial aspect made it has deep roots that ensured its solidity, or even disrupted the contagion wave from the chains of financial failures for many institutions. For instance, Abdul-Rahman and Gholami (2020) revealed the beauty of Islamic finance, by using its Profit-Loss Sharing Contract (PLSC) as a financing vehicle to aid in the recovery of the economy and enterprises from the COVID-19 economic crisis.

In addition to that, After the Covid-19 outbreak started, Bella (2020) tried to come up with a new plan by grouping MSE finance into several company categories through an Islamic peer-to-peer lending (P2P) network. This would make it easier for businesses to acquire cash. Moreover, Sikiru and Salisu (2020). Consider whether the Asia-Pacific Islamic stock market could be a useful hedge against risk brought on by pandemics and epidemics (UPE). They discover evidence in support of the hedging capability of Asia-Pacific Islamic stocks against UPE by relying on a novel dataset for UPE, but with decreased hedging effectiveness during the COVID-19 pandemic. Additionally, data indicate that applying the UPE predictor improves out-of-sample predictions of stock returns.

Also, Gwadabe, & Ab Rahman, (2020) investigated the possible roles of Islamic finance in the modern world in the provision of waqf-based economic welfare, social empowerment, and youth empowerment to overcome the economic impact of the COVID 19 pandemic, lessen human suffering, and protect lives, which is one of the fundamental goals of shariah. potential of waqf in empowering young people. The study's findings showed that waqf is a type of charity Islamic empowerment that can give youth empowerment and economic security to the Kano People by funding small and medium-sized businesses. The study came to the conclusion that Waqf can be used to overcome economic obstacles during and after the COVID 19 era in order to achieve financial stability and the implementation of Maqasid Sharia.on the same side Hambari et al (2020) in their study aimed to examine the role of Zakat in COVID-19.

Raza Rabbani Et al (2021). The current study suggests using Islamic finance as a potential strategy to assist afflicted nations in successfully navigating the pandemic-related economic crisis. For each stage of the pandemic, this study suggests ten cutting-edge Islamic financial services and specifies a four-stage COVID-19 model. Additionally, it examines how these services might be employed efficiently at various phases to mitigate the financial harm brought on by the pandemic.

1.1. SHARIA COMPLIANT SHARES:

In order to find a solution that would enable the Muslim investor to own shares in listed joint stock companies, a group of scholars led by Sheikh Muhammad al-Tayyib al-Najjar from a banker and Muhammad Taqi Usmani from Pakistan established screening criteria in 1987. The other members of the team were Salih Tag from Turkey and Muhammad Taqi Usmani. After the internet bubble drew many young Muslims to trade on the stock market using their family's wealth to benefit from the large returns, the stock surveillance fatwa started in the 1990s.

During this time, devout young Muslims asked if trading these shares was acceptable. The first Islamic stock index was launched in Malaysia in 1999, the same year the Dow Jones Islamic Index was established, in order to identify businesses that adhere to Shariah. This development has aided in expanding the potential for asset managers to produce new products and for investors wishing to invest according to Islamic principles.

There are roughly nine Shariah indicators in existence; some of these indicators are more exact than others in identifying the actions and activities that are prohibited by Islamic law. All users employ a two-level examination methodology (qualitative and quantitative), with different percentage ranges allowed for different criteria. Depending on the roles and objectives they play in the industry, some nations have their own Shariah examination boards and set different standards.

The most crucial standard for a Shariah examination was released on May 20, 2004, and it is known as the Shariah Indicator Standard for the International Accounting and Auditing Organization for Islamic Financial Institutions, which has its headquarters in Bahrain. The rule said that while investing in businesses that deal in interest or other

illegal activities was generally not permitted, it was possible to make an exemption and invest in their stock under specific circumstances.

- The first standard for all sharia examination methodologies is to exclude companies whose main business activity is prohibited such as Companies involved in products such as alcohol, pork products, conventional financial services (such as banks and insurance companies), entertainment (such as hotels, casinos, gambling, etc.), tobacco, weapons and defence. If the main business is Sharia compliant, while some secondary activities are not, the examination turns to whether those secondary activities are within acceptable parameters.
- The second standard: includes the quantitative or financial examination in two ways:
 - The first approach is to ensure that the principal assets of the company are not mostly cash or cash related. If the main assets of the company are cash-based, and the main assets of the company should not be in the form of debt.
 - The second strategy is to make sure the business does not engage in interest-related activities that go over the permitted limit, which is as follows:
 - The cash on deposit in interest-bearing securities may not exceed thirty percent (30%) of the market value of the whole equity of the Company.
 - The usurious debt must not exceed 30% of the market value of the company.
 - The total market value of illiquid assets must not exceed 30% of the total market value of assets.

According to Ayedh et al (2019) The Islamic capital market is supported by Shariah analysis of shares. The key to establishing a good standard for shares is having an efficient and workable Shariah assessment technique. Based on this standard, the fate of shares is decided, in terms of whether they are Shariah compliant or not.

The more robust the Shariah examination standard is in theory and practically applicable, the greater will be the confidence of investors and other dealers in the Islamic capital market in the market.

There is now a great deal of interest in Sharia compliance for listed companies. Like in the UAE, Bahrain and Malaysia, even in Pakistan, the Securities and Exchange

Commission in 2016 issued a 2% tax cut for all listed companies that were classified as Shariah compliant Cheong (2021).

1.2. SHARIAH COMPLIANCE AND RISK TAKING.

Analytical and empirical studies indicate that compatibility with Islamic Sharia may lead to a number of important benefits in the capital market that may reduce risks at the macro and micro levels for companies through:

- Enhancing liquidity by improving diversification opportunities for investors, and it can also facilitate access to the accumulated savings outside the banks circle for religious beliefs and direct them to productive investments. This improves the liquidity of the markets and expands the investor base, which in turn increases risk sharing and reduces the cost of capital.
- The asymmetry of information between management and stakeholders that appears as a result of management's uniqueness of some information and its exploitation for personal benefit is contrary to the purposes of Sharia, and obliges it to disclose all information, this is what makes Islamic markets may reach a strong level of efficiency, which is the most important objectives of financial theory. Hearn Et al (2012).
- The principles of Islamic finance by prohibiting interest and deception, sharing the returns and linking the financial investment to the real one, allow the company to adopt sound foundations that enable it to face the fluctuations of the financial markets. In light of low debt, the risk of financial leverage and compound interest accruals that may increase the direct financial deficit costs associated with agency costs from attorneys' fees and the costs of breach of contracts, or indirect such as the risk of losing clients, suppliers or employees.
- Restriction on the amount of debt may reduce the risk of a Shariah-compliant company, because high levels of debt actually limit the company's ability to meet operating payments. This may encourage the Shariah-compliant company to be more rational especially with regard to its cash and capital expenditures, which leads to the creation of a stronger cash reserve that makes the company more resilient to external shocks especially if it is backed by a base of tangible assets.

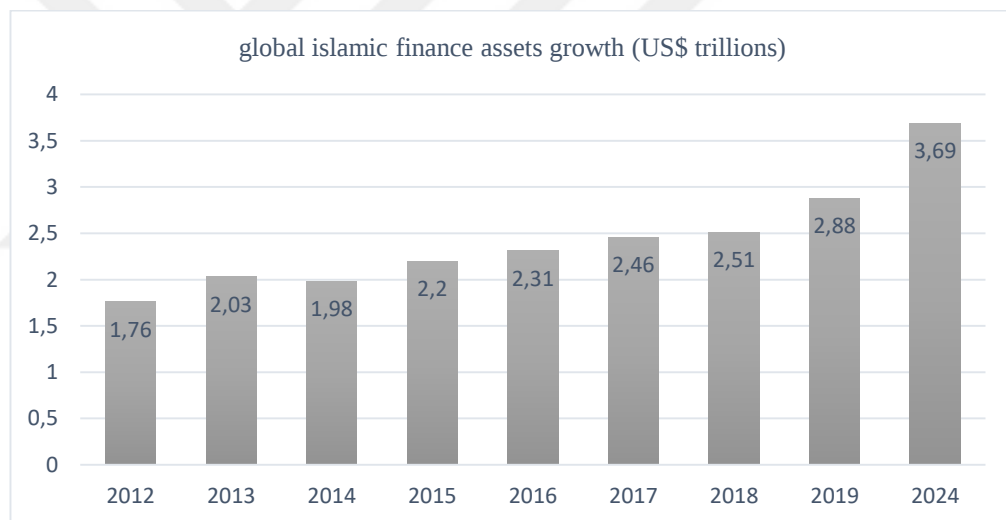
However, restricting the amount of debt may force the company to finance its operations and investments more at equity and cash levels which reduces the cash reserve and makes it less flexible. These restrictions may encourage Also, the company has to be more careful in its investments, and only choose projects that add the most value to the company. As a result, the company's risk may be reduced. This complex and crucial relationship of relationships between the various operational aspects of the company has not been studied empirically. Cheong (2021).

- The prohibition of speculative business and high-risk investments makes it at an acceptable level of risk, the expected returns of which are from its real activities, which may be easy to determine the probability of its occurrence, so that there are no significant deviations between the expected and realized returns, which reduces the degree of risk. On the other hand, it may deprive her of the opportunity to make additional profits.
- Restrictions on cash holdings help companies make effective investment decisions because they prevent companies from hoarding excess money that managers can invest for personal gain, which reduces agency disputes because managers tend to act less opportunistically. The third financial ratio relates to the amount of cash available. In the company, the lower the ratio indicates that the company is unable to finance large capital expenditures and is unable to finance more projects. However, it restricts investors from manipulating profits in the event of cash surplus. The impact of these financial ratios that characterize the Shariah-compliant company is mixed. Ahmed and Farooq (2018).
- Islamic financing is the appropriate alternative to reduce agency costs and weak investment, which reduces the financial risk, especially Murabaha financing, which is less risky for the banks that donate the financing. Minhat and Dzolkarnaini (2017).

Ethical and social investing factors have some specific risks that are not usually found in conventional investments, these risks include: deviation on Sharia standards, lack of significant experience, significant exposure to potentially suboptimal companies and low working capital. So, these risks must be taken into account. Hayat and Kraeussl (2011)

Islamic financing first appeared 50 years ago in nations with sizable Muslim populations that wanted to make sure their financial sources complied with Shariah law and Islamic tenets. The business experienced its biggest recorded increase since the global financial crisis in 2019 with assets in the Islamic finance sector totalling US\$2.88 trillion as it showed in table 2. The future is bright: this is anticipated to increase to US\$3.69 trillion by 2024. Along with the fact that Muslim nations have turned to Shariah financing to quench their thirst for capital, another factor contributing to its popularity is the fact that Shariah financing is starting to gain traction with non-Muslim countries as well. Also, Moody's Investors Service said, (Islamic finance will continue to grow in 2022 as economic recovery accelerates, particularly in the Gulf Cooperation Council (GCC) region).

Table 1. Global Islamic Finance Assets Growth

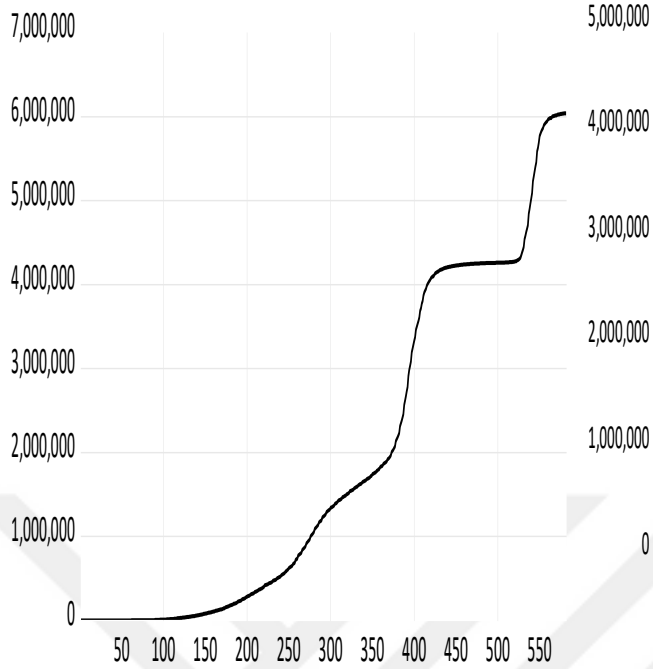


Source: ICD- Refinitiv Islamic Finance Development Report. December 2020

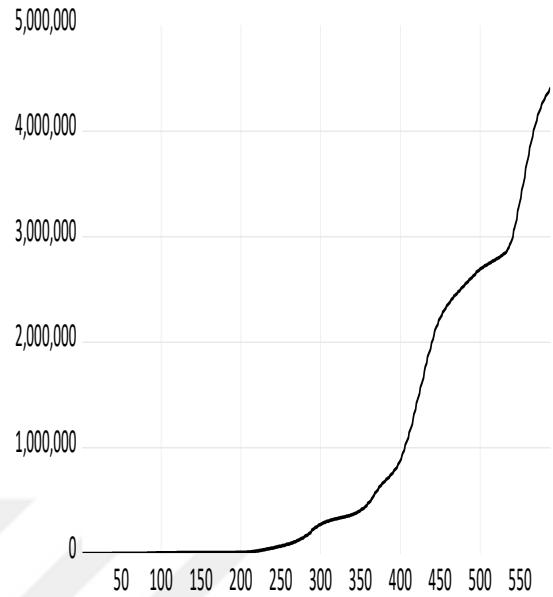
1.3. THE SITUATION OF COVID-19:

Tragically, we are all now aware of the COVID-19 pandemic's continuous high death toll. We are all also concerned about how the crisis will ultimately affect the economy, particularly how it will affect financial markets. This pandemic is still present as of the time this thesis was written, and it is unclear how severe the eventual catastrophe will be. Therefore, the topic of our thesis is "Problems of Islamic Stock Markets in the Era of COVID 19."

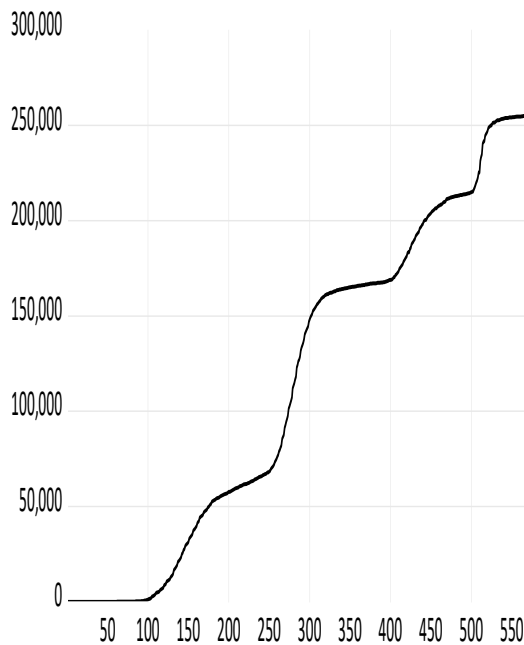
COVID-19 New cases for Indonesia

**Graph 1. COVID-19 New Cases for Indonesia**

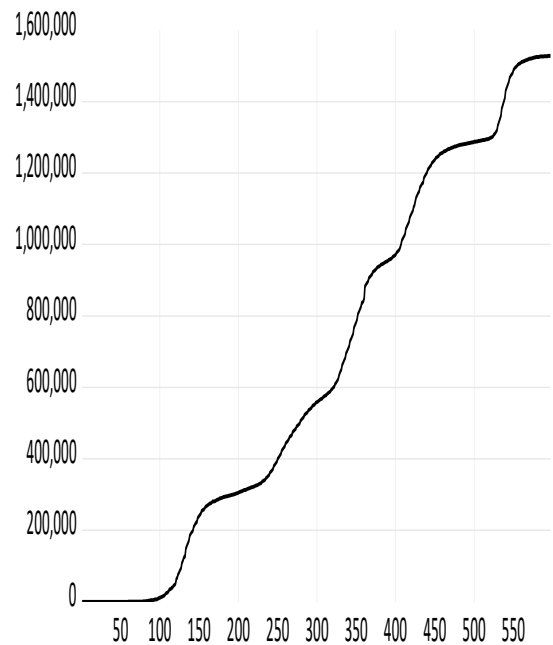
COVID-19 New cases for Malaysia

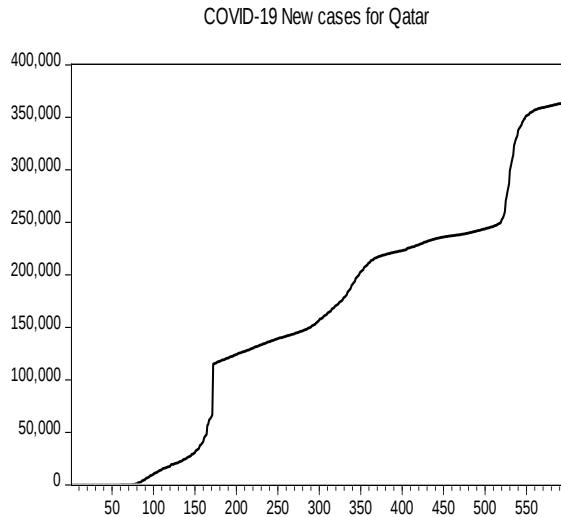
**Graph 2. COVID-19 New Cases for Malaysia**

COVID-19 New cases for Nigeria

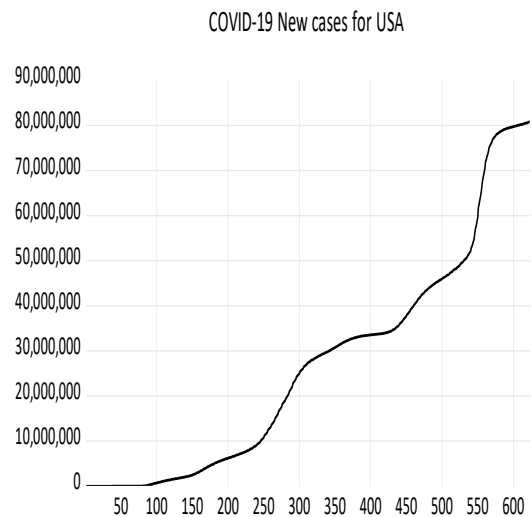
**Graph 3. COVID-19 New Cases for Nigeria**

COVID-19 New cases for Pakistan

**Graph 4. COVID-19 New Cases for Pakistan**



Graph 5. COVID-19 New Cases for Qatar



Graph 6. COVID-19 New Cases for USA

As we can see in the graph from 1 to 6 which show the COVID-19 new cases in each country which indicate to our samples and they are Indonesia, Malaysia, Nigeria, Pakistan, Qatar and the USA. The graphs, show us how much the increasing of the numbers of the cases every day. nevertheless, in some countries the increasing of the cases is steadily however in some others the increasing more suddenly, sharply and dramatically. An overall look, we can that the starting point for all countries and the increasing almost in the same way and same direction.

1.4. THE OBJECTIVE OF THE RESEARCH:

The Islamic finance industry is imposing itself on the ground. It has achieved a great presence on the global economic arena. Due to the advantages enjoyed by this industry and its reliance on Islamic Sharia provisions and standards.

One of this successful industry is the creation of Islamic indexes. which restrict the investor in determining the directions of his investment towards halal. As a result of this, several Islamic indexes have appeared in many Islamic and even international countries, and they are still under study in other countries of the world.

The main objective of creating these indexes is to provide dealers and investors in the stock market with information that will enable them to take advantage of the market's capabilities and opportunities. In accordance with the legitimate vision that they adhered

to when investing in this sector. These indexes also aim to attract Islamic financial investments in the market by highlighting the available areas. It also aims to introduce foreign investments to the advantages of the Islamic economy. And his role in maintaining and developing money in the right way.

These indexes were linked to specific criteria, as mentioned above. Which shows the conditions for entering this company in the index without others. These indexes have been issued based on these standards. Which the owners saw as a legitimate form of investment in the stock markets.

The objectives of this research are to study Islamic stock indexes during the time of Covid-19 extensively and compare it with conventional stock indexes. Our research aims to analyse how stock returns indexes of Islamic and conventional have been affected by COVID-19. So, in other word, the research objected to analyse the effect of COVID-19 on the returns and volatility of Islamic and conventional stocks indexes by using ARIMA-X and EGARCH-X models. In keeping with this objective, the Islamic and conventional stocks indexes were used to estimate the financial stock return, and the dummy variable as of number of everyday cases of each country was used to estimate the effect of COVID-19. Maki (2012) cointegration test using the total cases of Covid-19 as an everyday data, and the same with other authors which they used the COVID-19 new cases such as Gao et al (2022), Anh and Gan (2020), Ashraf (2020), Khan et al (2020), Ashraf (2021), Öztürk et al (2020), Nguyen et al (2021) and Rabhi (2020).

The study will examine the uncertainty and volatility of both Islamic and conventional stock indexes before, during the Covid-19 crisis. In addition to comparing Islamic stock market with others and the impact of this pandemic on them. Is Islamic finance and banking the solution instead of the traditional system in such circumstances? As they said in some paper that The Islamic financial system is a safe haven during crises

Based on the above, the research problem can be limited to the following points:

1. Are the Islamic stock market indexes affected more or less than Conventional stock market indexes during the time of Covid-19?
2. Are the uncertainty and volatility of Islamic stock markets indexes more or less than the conventional stock market indexes?

CHAPTER TWO

LITERATURE REVIEW

As we already mentioned, the COVID-19 pandemic had a significant human cost. We all worry about how the crisis will affect the economy and finance in general. The virus is still active, and the effects of the economic, financial, social, and psychological crisis are still being felt as of the time this thesis was being written. Islamic banking and finance were significant contributors to the 2008 financial crisis, therefore research into them in this crisis will be useful and fill a research gap.

2.1. THE EFFECT OF PANDEMIC ON THE ECONOMY

Numerous articles examine the economic effects of previous pandemics or epidemics like HIV/AIDS or provide projections of the cost of upcoming pandemics. Haacker (2004), for instance, looks at the effects of HIV/AIDS on public services and government finances. While Santaaulalia-Llopis (2008) investigates how the AIDS epidemic has affected economic growth. Quantitative assessments of the epidemiological and financial effects of obesity and diabetes on developing nations are provided by Yach, Stuckler, and Brownell (2006). Also the UK's entire economy is examined in a study by Smith, et al (2009), which looks at the impact of outbreak influenza.

In other publications, many of which are far more directly related to the Coronavirus situation, we have been warned about estimating the economic effects of probable future pandemics and epidemics. el Sevilla et al (2018). The study clearly lay out the financial concerns that are currently top of mind with Coronavirus: the costs to the healthcare systems, both public and private, of treating infected patients and controlling outbreaks; the strain on health systems from having to simultaneously deal with much more common health issues during epidemics; the lack of job efficiency; disconnectedness obstruct economic activity; the growth of the tourism industry; and its impact on direct investment.

Fan et al (2018), all share this concern Recently, "a higher investment in preparedness against severe diseases and pandemics" was noted as being unmet. Their calculations show that the annual losses due to pandemic risk are around 0.6% of global revenue, in other word nearly 500 billion US dollars. This once substantial sum appears

to be greatly undervalued at the price of COVID-19. Several other works, including those by Yach, et al. (2006), Madhav et al (2017), Tam et al (2016), Lewis (2001), Bloom and Canning (2004), and numerous others, also emphasize the importance of managing economic risk in light of the possibility of potential future pandemics.

We should also take note of papers that track the frequency of contagious epidemics that have experienced "close calls" and were successfully contained to a far lower level than they may have otherwise. The report by Thomas (2018) about India which talk about the recent fatal epidemic of the highly contagious respiratory disease is incredibly fascinating. In fact, public health professionals' incredibly quick reaction prevented a bigger global health problem in this situation. A report from the WHO Board's Worldwide Monitoring of Preparedness Board dated September 2019 that states unequivocally that there is an immediate threat of a worldwide disease outbreak but that the world is not prepared, is particularly remarkable. According to Board (2019), the WHO between 2011 and 2018 monitored 1483 outbreaks incidents in nearly 172 regions around the world.

Many papers were written in the topic of COVID 19 and its affect on the economy globally or in a country such as US, China, Malat, Turkey, India, Indonesia and so on Açıkgöz and Günay, (2020), Michie (2020), Priya, et al. (2021), Beckman and Countryman (2021), Gautam and Hens (2020), Dhar, (2020), Gupta et al (2020), Cutler, (2020), Susilawati, et al (2020), Ozili, and Arun (2020) and Kanu, (2020) and so many others.

2.2. IMPACT OF PANDEMIC ON BANKING, FINANCING AND FINANCIAL MARKETS

Naturally, banks are at risk during market crisis because of the possibility of the potential for bank runs and non performing loans when things go very badly and that is the worst circumstances. As of now, Leoni (2013) has discovered a strong correlation between the development of HIV in underdeveloped nations and significant increases in deposit turnover. They explain this by saying that large-scale withdrawals of deposits were necessary to pay for individual treatments.

According to a scientific approach developed by Lagoarde-Segot and Leoni (2013), there is a correlation between the combined frequency of major outbreaks and the

likelihood that the banking system in a developing economy will collapse. During epidemics, a large portion of bank and microfinance institution group as there will be pressure on the poor's borrowing since the mass shock will put pressure on all members of the group (Skoufias, 2003). Bank robberies may occur at rural financial institutions amid crop failures or flooding Binswanger and Rosenzweig (1986). How COVID-19 will alter financial institution procedures is still up in the air.

Elnahas et al (2018) discovered businesses in such places that are more vulnerable to disasters adjust to be less leveraged. They provide an explanation for this discovering to businesses affected by operating disruption, higher capital expenses, and narrower cashflow that is compatible with a trade-off perspective of asset base Kraus and Litzenberger (1973). Businesses regularly respond to macroeconomic shocks, despite the notion that they have a stable capital structure policy. Huang et al. (2018).

According to Lee and McKibbin (2004), SARS caused China and Hong Kong higher risk by 200 basis points in risk premium. While the impact of country-risk on share costs will vary depending on how exposed a company is to different markets, there is no doubt that a rise in a country risk of two percentage points would result in a material rise in equity capital costs and a corresponding worldwide pension underfunding. Nevertheless, the findings about higher country risk for Hong Kong and China by Lee and McKibbin (2004) are predicated on the fact that these two locations are particularly at risk for SARS.

Although there hasn't been much written regarding how financial markets are impacted by diseases, let alone pandemics, there are a few inaccurate comparisons to be drawn from other kinds of natural disasters. Markets reacted to aviation disasters, terrorism, and more recently, natural calamities like earthquakes and volcanic eruptions. While disasters involving air crashes, like as the COVID-19, have been catastrophic to the airline business globally, Bosch et al (1998) imply that switching carriers after air crashes it might be beneficial for some airlines. With COVID-19, which is reducing airline operations worldwide, this is unlikely to happen. some industries obviously would be affected by COVID-19 more than others. Nevertheless, domestic demand practically will be affected by COVID-19 in everywhere.

In 2003, it was predicted that the (SARS) might cost the globe from Thirty to hundred billion USD as Smith (2006) founded. on the other hand, the Coronavirus outbreak has already spread globally and is acting like "the once-in-a-century pathogen," SARS was primarily found in China Gates, (2020). The effect on the world economy is anticipated to be far more significant.

Based on Chien et al (2021). which presented an empirical relationship between the fear of Coronavirus and financial stock market volatility. It is essential to research the fear of Coronavirus and stock market volatility when establishing an adequate portfolio diversification strategy in global financial markets. By using AR (1) – GARCH (1,1) the corona pandemic related stock market volatility was measured in the study. According to their findings, COVID-19 anxiety eventually drives stock market volatility and public attention.

In a paper was done by Zeren and Hizarci (2020), Its purpose is to shed some light on any possible Corona outbreak stock market effects. By employing the Maki (2012) cointegration test using the total mortality and total cases of Covid-19 as a daily data in the analysis using daily data from the 23 January 2020 until the 13 March 2020, potential impact on stock markets have been investigated. The findings show that, over time, all stock markets tested with total death cooperate. additionally, investors were advised to invest in the gold market. In order to reduce risk, investors will mostly gravitate to any stock markets or derivative markets of a state where the pandemic is comparatively uncommon.

For the first time, a study is addressing the effect of country culture on stock market responses to a global health catastrophe. by Fernandez-Perez et al. (2021). it has been seen a bigger decline and more volatility for stock markets in countries with lower individuality and greater uncertainty avoidance within the first 3 weeks after a state's preliminary Corona case notification. After adjusting for factors such as investor apprehension, total instances of infection, the strictness of government response protocols, how democratic a country is, the corruption in the politics, governmental reaction and the SARS event which occurred in 2003.

Phan and Narayan. (2020). on their paper which offers analysis on how the price of the stock, which is might be the most dynamic indicator of finance, responded in exact

time to various COVID-19 evolution phases. Like any unwelcome news, they contend that markets initially overreact before correcting themselves as more information becomes accessible and more people become aware of the implications on a wider scale. This is the claim they are making, and it needs solid empirical support as they mentioned.

Narayan Devpura and Wang (2020).they investigate the connection between the Japanese Yen and stock returns. They demonstrate that the appreciation of Japanese stock returns was caused by the Yen's depreciation against the US dollar using a variety of econometric model variations and empirical parameters. The Yen declined by one standard deviation, or 0.588%, over the COVID-19 period, which raised the return on stocks about 71% of the normal profitability. They could see that this association was stronger during the COVID-19 timeframe compared to the period prior to the crisis (January 2020 to August 2020).

Contessi and Pace (2021) Discover the time of somewhat shocking dynamics and crashes in the 18 important stock markets in different countries around the world and that is during the first wave of Corona pandemic in 2020. They discover statistical proof that the stock market of China spreads instability to almost all other markets around the world.

By using a unique model of wavelet-based quantile-on-quantile approach on American and chinses stock market, Gao et al (2022) compared the effects of Corona pandemic on stock volatility. The impact has greater regularity in the lower frequency domain, according to wavelet decomposition. COVID-19 is the primary cause of the American stock market significant volatility as compared to changes in oil prices. But unlike China, the stock market USA is not impacted by the pandemic due to the rapid increase in daily new cases that has persisted for months.

Herwany et al (2021).in their study which intends to establish whether the Corona pandemic has impacted current industries and how it influences market returns on the Indonesian Stock Exchange (IDX). They used Ordinary Least Square (OLS) regression in their research. The Corona pandemic had a cumulative negative effect on the equities in the Indonesia Stock Exchange (IDX), as measured by the average abnormal return sample.

About the stock market China, Al-Awadhi et al (2020). examined if infectious contagious diseases have an effect on the stock market results. They examine the effect

of the COVID-19 virus, a contagious infectious disease, by using panel data analysis as a natural experiment. The findings indicate that the stock returns across all companies are substantially impacted in a negative way by the daily increases in the number of new confirmed cases and deaths from Corona virus.

By research done Okorie and Lin (2021). The fractal contagion impact of the Corona pandemic on the stock markets was examined. For ex-ante and ex-post COVID-19 outbreak study, stock market data from the top 32 economies affected by the coronavirus were sampled using the Detrended Moving Cross-Correlation Analysis (DMCA) and Detrended Cross-Correlation Analysis (DCCA) techniques (as of March 31, 2020). The results lend credence to the hypothesis that the COVID-19 outbreak affects financial markets in a fractal contagion manner. Furthermore, the fractal contagion effect for both stock market return and volatility diminishes over time (in the medium and long term). As a result, this paper offers supporting data for the Corona pandemic stock market fractal contagion impact.

Capelle-Blancard and Desroziers (2020). analysed the way stock markets have integrated public knowledge about the Corona virus. From January to April 2020, as a daily data, the panel of 74 countries on the economic and health was taken into account by the authors. The response on the financial stock market can be summed up as follows. 1) Following central bank intervention from 23 March until 30 April, nevertheless, investors not any more appeared alarmed by the reports of the health emergency, and rebounded all over the world. Stock markets initially ignored the pandemic until 21 February, before reacting strongly to the growing number of infected people 23 February to 20 March. Prior to 21 February, when the epidemic was first overlooked, the stock markets had a strong response to the rising number of afflicted people from 23 February to 20 March. 2) Country-specific traits don't seem to have affected how the financial market responded. 3) Investors were concerned about the frequency of Corona virus instances in nearby, usually affluent nations.

Topcu and Gulal (2020). They had a paper about how Corona affected developing stock markets from 10 March until 30 April, 2020. Discoveries show that the outbreak's detrimental effects on developing stock markets steadily decreased and started to taper down by middle of April. According to classifying by regions, emerging markets in Asia

have been hardest hit by the outbreak, while those in Europe have been least affected. Additionally, we discover that the quantity of the stimulus package offered by the governments and the speed of official response are important factors in mitigating the pandemic's consequences. Likewise, Uddin Et al (2021). looked at how this pandemic affected the volatility of the stock market. They discovered that these level of country economic traits and determinants really do help to lessen the volatility arising because of the virus outbreak and that is by using data from 34 developing and developed countries.

Anh and Gan (2020). They examine the effects of everyday rises in the number of Corona virus new confirmed cases in the period before the lockdown and in it, by daily stock returns of 723 listed firms in Vietnam from 30 January to 30 May 2020 and that by using the model of panel-data regression. It confirms that the everyday rising in the Corona cases has a negative effect on the Vietnamese stock returns and reveals that the financial stock market performing in the pre and the period of the lockdown was inconsistent. The time of the lockdown had a large, favourable effect on the performance of the stocks in the entire market and Vietnam's numerous business sectors, despite the fact that Corona virus before the lockdown had a significant, negative effect on Vietnam's stock returns. The Corona virus had the greatest effect on the financial sector of the Vietnamese stock market.

Alam et al (2020), examined the effects of the Corona caused lockout on the stock market of India. The research looked at whether the market response would be the same before and after the COVID-19-caused lockdown and how much of an impact it had on the stock market of India. Methodology for the Market Model Event studies is employed. The findings show that the market responded favourably during the current lockdown period, as shown by tremendously positive average abnormal returns. Investors anticipated the lockdown and responded favourably, as opposed to the before the lockdown time, when the AAR turned negative as a result of investors' panic.

According to Ashraf (2020) who investigated how the Corona outbreak affected the financial stock markets. He found that the reaction of the financial stock markets unfavourably to the rise in COVID-19 confirmed cases using daily data on Corona new confirmed cases, deaths, and also financial stock market returns in 64 different countries around the world between 22 January 2020, until 17 April 2020.

Khan Et al (2020) looked into how the Coronavirus outbreak has impacted the financial stock markets in sixteen different regions. The study's findings are estimated using normal t-test and Mann-Whitney, and pooled OLS regression. Per week panel data set of coronavirus new cases and financial stock returns is created. The results of the combined OLS estimation demonstrate that the weekly increase in COVID-19 instances is a poor foreteller of the financial stock market performance. The returning on these regions' top stock indices in the time of Coronavirus epidemic and returning in the time where there is Coronavirus era are then compared. To compare the returns, the authors run both t-test and Mann-Whitney test. The findings show that in the time of the early stages of the outbreak, investors in these regions did not respond to Coronavirus media reports.

In 15 countries around the world, the researchers Kusumahadi and Permana (2021) attempt to investigate the effect of Coronavirus on financial stock return volatility. They conclude that fluctuations in exchange rates have significantly impacted financial stock returns in the majority of all the regions which was taken by using daily data from Jan 2019 to Jun 2020.

Bora and Basistha (2021) Using an empirical investigation and a generalized autoregressive conditional heteroscedasticity model, the effect of Coronavirus on the volatility of financial stock prices in India examined by the authors. The analysis used the closing prices per day for both Nifty and Sensex stock indexes from 3 September, 2019, to 10 July, 2020.

Additionally, the study aimed to compare the return of the stock price between the pre-Coronavirus out break and in the outbreak situations. Conclusions show that during the pandemic period, there was volatility in the Indian stock market. They discovered that the return on the index was higher in the pre-Coronavirus period than it was in the Coronavirus time when comparing the findings of the Coronavirus time with those of the pre-Coronavirus period.

Utomo and Hanggraeni (2021) investigated how the Coronavirus outbreak has impacted the performance of Indonesian stock market. The fixed-effects panel-data regression method is used in this study, and the data was per day for the stock returns of 272 companies that are listed on the Indonesian stock index (IDX) from 2 March 2020

until 27 November 2020. The research supports the negatively significant effect. Furthermore, regardless of how stringent they are, lockout policies have a favourable and considerable effect on Indonesia's stock returns per day.

According to Gil-Alana and Claudio-Quiroga (2020) who examines the potential effects of the Coronavirus issue on Asian financial stock markets by the results of using fractional integration methods per day data show that mean restoration, and consequently transient effects of shocks happen in the index of Nikkei 225. This hypothesis is disproved for the Kospi and Shanghai Shenzhen indices, suggesting that shocks are persistent.

The effect of the Coronavirus outbreak on the possibility of a financial stock market crash in China is examined by Liu, Huynh and Dai (2021). In order to achieve this, they first calculated the conditional skewness of a GARCH with skewness (GARCH-S) model's return distribution as a proxy for the Shanghai Stock Exchange's equities market crash risk. After that, they used information from the Baidu Index to create a fear index for Coronavirus. According to the results, conditional skewness is negatively impacted by daily rises in the number of the new confirmed cases, which suggests that the pandemic raises the chance of a financial stock market collapse.

The objectives of the paper which is done by Insaiddoo et al (2021) determining how much the Coronavirus outbreak has affected Ghana's performance financial stock market. The time series data was used per day data from 2 January 2015 until 13 October 2020, the study applied the (EGARCH) model which explained as the (exponential generalized autoregressive conditional heteroscedasticity. To validate, pre- and post-estimation tests ADF (Augmented Dickey-Fuller) and PHP (Phillips-Perron) as well as Jarque-Bera were performed. The Coronavirus outbreak and Ghana financial stock returns are negatively correlated, but this relationship is statistically insignificant, according to the stud

Chaudhary et al (2020) in their empirical study which compares the Indian Index with the American S&P 500, Nikkei 225, and FTSE 100 foreign indexes in an effort to determine how the effect on the performance of the Indian stock market by Coronavirus was occurred. In this analysis, everyday data from January 2019 until May 2020 were considered. The influence of Coronavirus outbreak on the various metrics of volatility, including the standard deviation, skewness, and last but not least kurtosis of all indexes, has been evaluated using GLS regression.

Ashraf (2021) found significant proof that the reduction in the financial stock market returns in response to a 1% growing number of cases that have been confirmed is greater for the nations where uncertainty aversion at the national level is higher by using data per day on Coronavirus confirmed cases and financial stock market returns from 43 nations.

Sun et al. (2021) utilized a case study to look at the effects of Coronavirus outbreak on the Chinese stock market and analyse how investor mood affects returns. During the post-event window, the pandemic has an overall negative effect on the financial stock market that cannot be attributed to actual losses. Results indicate a larger than typical positive association between stock performance and investor sentiment.

The effects of the Coronavirus on the Turkish financial stock market are examined by Öztürk et al (2020) for the first time in this paper's empirical research. The research used a fixed-effect model with an everyday data to investigate the sectoral economic effects of the universal epidemic. Results demonstrated that the cases which highlighted in Turkey had a greater effect on sectoral indices than did the cases in Europe and the rest of the globe.

Ozkan, O. (2021) in his paper examines how the new coronavirus outbreak has impacted the financial markets performance in six severely affected developed nations: the USA, Spain, the UK, Italy, France, and Germany. When an everyday financial stock market data from 29 July 2019 until 25 January 2021, are subjected to the wild bootstrap automatic variance ratio test, it is discovered that all financial stock markets included in this study deviate from market capacity at times in the time of the outbreak. The US and UK stock markets exhibit market efficiency deviations more so than other stock markets in the time of Coronavirus outbreak.

Narayan et al (2022) examined the effects of coronavirus outbreak on financial stock market returns in Australia. The pattern of the effect we uncover using a quantile regression methodology reveals that Coronavirus has had a diverse effect on market sectors, with improvements in the fields of consumer goods, health, and information technology.

He et al. (2020) This essay tries to investigate the straight consequence and collateral damage of Coronavirus on the financial stock markets. They experimentally

analyse the return data per day from different financial stock markets around the world such as America (USA), Asia (China, South Korea and Japan), Europe (France, Italy, Spain and Germany). By using t-tests and nonparametric Mann-Whitney tests. The statistical results demonstrate that Coronavirus has a short-term, detrimental effect on the financial stock markets of the impacted areas.

Izzeldin et al (2021) looked into how Coronavirus has affected stock markets and industry sectors within the G7 by using ST-HAR model. They draw attention to the coherence and gravity of this historic catastrophe. Although crisis intensity and timing vary, they uncover robust transition proof to a crisis regime in all nations and sectors.

In the study were done by Alam et al (2021) They analysed data for eight Australian stock market sectors, including real estate, telecommunications, energy, food, pharmaceuticals, healthcare, and transportation. In order to do this, they obtained data from the Australian Securities Exchange (ASX) and used the "Event Study" approach to analyse it. Here, we use the 10-day window for the official Coronavirus outbreak notification in Australia on February 27, 2020. The study's conclusions demonstrate that the indices for food, drugs, and healthcare post impressively favourable returns on the day of announcement. After the announcement, the telecommunications, pharmaceutical, and healthcare industries perform well, while the transportation sector performs poorly.

Lee et al (2020) in the paper which look into how the Coronavirus outbreak affected the Malaysian financial stock market. The index Kuala Lumpur Composite Index (KLCI) and other 13 sectorial indices were the dependent variables employed in this study. This study's sample time ran from 13 December 2019, to 18 April 2020. The results showed that, with the exception of the Real Estate Investment Fund (REIT) index, growing numbers of Coronavirus cases in Malaysia tended to have a negative effect on the performance of the KLCI index and all sectorial indexes.

Mazur et al (2021), examined how the American financial stock market fared during the Coronavirus caused crisis in March 2020. They found that, despite a dramatic fall in equity values in the oil, real estate, entertainment, and hospitality sectors, strong positive returns are still shown in the natural gas, food, healthcare, and software sectors.

The effect of the Coronavirus outbreak on the financial stock markets of G-20 members is investigated in the study done by Singh et al (2020). They measured

anomalous returns (ARs) using an event study technique, and They identified their root causes using panel data regression. They only included indices from G-20 nations in their sample. The outcomes of the panel data study support the financial stock markets' recovery from the negative effects of Coronavirus.

Nguyen et al (2021). try to examined how the Coronavirus outbreak affected Vietnam's stock returns and liquidity. By using information from different areas such as 50 banking shares, insurance shares, and finance companies shares which listed on Vietnam's two largest stock markets between 30 January 2020, and 15 May 2021, the authors conducted a panel data regression study. The results show that everyday increase in the total of new confirmed cases brought on by Coronavirus has a considerable detrimental effect on the returns and liquidity of the financial stock market.

Rabhi (2020) investigates the empirical pandemic susceptibility of the developing Asian stock market. Using the Coronavirus as a case study, the author investigated the effects of the everyday verified Coronavirus cases as well as an element of behaviour dependent on a triggering anxiety event connected to news about Coronavirus deaths using the ARDL panel data approach.

Using daily data from 1 October 2019 until 30 June 2020, the researchers Takyi and Bentum-Ennin (2021). analysed and measures the current (short-term) effects of the Coronavirus on the performance of financial stock market in thirteen African nations. They used a brand-new which called (Bayesian structural time series) methodology which known as (a state-space model). Generally speaking, according to our Bayesian posterior estimations, the Coronavirus severely decreased the performances of financial stock market in Africa both in the times and after its occurrence.

2.3. ISLAMIC STOCK MARKET AND COVID-19

The financial market downturn following COVID-19's breakout is similar what happened in 2007-2009, which called Global Financial Crisis (GFC). Quinsee (2020). But there is a significant distinction between the GFC and the current situation. A result of the acts of market participants, bankers, and speculators, the GFC was an endogenous shock. These behaviors caused an excessive increase in debt and risk-taking, which gave rise to the credit bubble. as Roy and Kemme (2020) mentioned. Contrarily, the

Coronavirus outbreak problem is brought on by exogenous forces that have a direct impact on the actual economy.

In the early wake of the GFC, investment instruments based on Islamic finance principles performed better. Alam and Rajjaque (2016), Hoepner et al. (2011), Masih et al. (2018), Ashraf (2013), and Saiti et al (2014). Many times, the performance discrepancy is linked to the inherent features of Islamic banking, such as debt avoidance and connections to the actual economy. Ibrahim, Abedifar et al. (2015), Chapra in 1985, and Ebrahim in 2009. (2016). Because the Coronavirus outbreak has led to the shutdown of significant portions of the actual economy, it exposures both conventional and Islamic investments to the same economic shock. The concern is whether Islamic investments will demonstrate the same level of resiliency or hedging advantages during the pandemic crisis as they did during the Great Financial Crisis.

Despite negative market action in the first quarter of 2020, S&P and Dow Jones claimed that their Islamic indexes excelled their conventional rivals. Welling (2020). In depressed markets, low leverage portfolios and indices outperform, and Islamic indices have superior stock selection despite having less diversification. Mohammad and Ashraf (2014) Mohammad and Ashraf (2015), Tahir and Ibrahim, Boudt et al. (2019), and (2020). Additionally, the outperformance is determined by the time frame and performance benchmark used to evaluate performance. The selection of the Shari'ah screening standard by Elfakhani et al. (2016) Ashraf; Derigs and Marzban (2009).

Ashraf et al (2022) by using a sample from almost all around the world , US, Europe, and Asia and with everyday data in the tome spanning from 1 May 2018, until 30 April 2021, this study empirically examines how Islamic shares (equity) investments withstood the peaks and valleys of shares markets in the time Coronavirus outbreak. They discovered that sample were chosen demonstrate considerable excess returns in nominal and risk-adjusted terms over the Coronavirus time. They also found evidence that the firms which adhering to the market value of equity (MVE) approach for Shariah screening, do offer resistance or hedging during extreme market declines. Investors should be aware that the hedging advantage of IEIs is only noticeable during significant market swings.

Erdoğan Et al (2020). The study's objective is to examine how the Coronavirus outbreak in Turkey impacted the conventional and Islamic stock markets. The DCC-

GARCH approach was used in the study, and everyday data from 10 February 2011, until 2 September 2020, was used. The findings suggested that compared to Turkey's traditional stock market, Islamic financial stock markets are more resilient to the shock of the world Coronavirus outbreak.

Salisu and Sikiru (2020), investigated whether the Asia-Pacific Islamic financial stock market can effectively protect investors from the uncertainties brought on by pandemics and epidemics (UPE). They provided support for the hedging potential of Asia-Pacific Islamic financial stocks against UPE by relying on a new dataset for UPE, but with decreased hedging effectiveness in the time of the Coronavirus outbreak. Additionally, data indicate that applying the UPE predictor improves out-of-sample predictions of the returns of stock.

Aloui et al (2022), tested how the interactions between Islamic and conventional equities in the Chinese market were affected by the Coronavirus figures (infected cases, fatalities, and recovered) and accompanying promotions. In doing so, they applied a multivariate GJR-GARCH model under (DCC) which called dynamic conditional correlation, multiple and partial wavelet coherence approaches, and Coronavirus-related announcement for the time to recent Chinese everyday data spanning from 2 December 2019 until 8 May 2020. The findings from multivariate GJR-GARCH models offered that while the recovered cases do not have a significant impact on mean DCCs across Islamic and conventional financial stocks, Coronavirus infected cases and fatalities do. None of all the above which mentioned before has a significant effect on the variations in DCCs.

Sherif (2020) in his study looks at the Coronavirus and its immediate effects on Dow Jones market index which located the UK that complies with Shariah. The results indicate a substantial and statistically significant association between the Coronavirus outbreak and the performance of the traditional financial stock market index by using everyday data from 29 January 2020 until 20 May 2020 and 10 UK industrial sector groupings. The results also reveal that, in contrast to its UK counterpart, the disease has a negative but negligible interaction with the Dow Jones which faith-based ethical in other word Islamic index.

Network analysis was utilized by Shahzad and Naifar (2022) to look into the static and dynamic dependencies within the conventional and Islamic equities sectors. The

decoupling theory and how sectoral dependence varies during COVID19 are the main topics of the study. According to empirical data, there was more spillover during the COVID19 sub-period. In the time of Coronavirus outbreak, the dependence between conventional share returns is greater than the dependence between Islamic share returns. The conclusion of this study has a number of important ramifications for risk management and portfolio selection. Throughout the entire sample period, portfolios made up of Islamic stock categories such as industrials, basic materials, consumer services, and technologies illustrate the advantages of limited diversification.

Shear and Ashraf (2022) expanded on the recently heated discussion comparing the performance of equities that adhere to Shariah with those that do not, particularly in the time of Coronavirus market meltdown. The authors used company-level stock return data to show strong proof that shariah-compliant stocks surpassed their conventional counterparts. Overall, their results propose that financial stocks that adhered to Shariah performed better throughout the Coronavirus crisis incident.

In contrast to conventional equities markets, the Coronavirus's effects on Islamic equity markets are revealed by Hassan Et al (2022). The markets have had a very significant and indiscriminate decline. Asian Islamic markets have some degree of resilience compared to their Western counterparts. Asian markets, both Islamic and non-Islamic stocks, indicate a faster recovery than the others. Despite the significant decline, certain markets manage to post gains, with Islamic markets outperforming their peers. Traditional markets react to the COVID-19 aftershock uniformly due to their strong interconnections

Irfan et al (2021), analysed the effect of the Coronavirus announcement on the Islamic financial stock indexes on the Indian Stock Exchange and IDX Indonesian Stock Exchange. And that is by using the threshold volatility and event study models. The event window spans 60, 30, and 20 days with the date of the event start by 11 March 2020. The findings indicate that the JII and BSE Shariah have positive correlations, with the BSE Shariah Index displaying a negative reaction to the declaration of Coronavirus as a world-wide outbreak.

Saleem et al (2021) During COVID 19, this study examined how the Islamic stock market responded in nine different markets worldwide. It was done using the GARCH

(generalized autoregressive conditional heteroscedasticity) approach. The findings imply that for the first 15 days after the outbreak's announcement, both the Islamic financial stock index in Australia and the Islamic financial market index which located in the GCC were stable in the short term. The epidemic had a substantial short-term effect on the Islamic financial stock indexes in Bahrain, Qatar, the UAE, ASEAN, also the Middle East, and MENA regions.

Nomran and Haron (2021), compared the performance of Islamic and conventional financial stock markets in the time of Coronavirus outbreak, this research used sample t-tests and panel pooled OLS regression. The analysis uses daily data from 15 nations covering two main periods and four sub-periods from September 1, 2019, to April 30, 2020. Findings show that after mid-April 2020, Islamic indices' returns started to be positive instead of negative, but conventional indices' returns remained negative throughout the periods. Additionally, the findings imply that Coronavirus has a detrimental and statistically significant impact on the performance of both stock indexes.

Adekoya et al (2022) offered fresh perspectives on the connections between conventional and Islamic financial stock markets' volatility. First, nine sectors are taken into account for each category as part of the study at the sectoral level. The second step involves applying a larger level of novelty by figuring out if the COVID-19 event itself or the rumors or feelings it sparked are to blame for the connection. In conclusion, research indicates that Islamic markets are typically more resistant to the pandemic than traditional markets.

On the other hand, Hasan et al (2021), objectively investigate the Coronavirus outbreak's effect on both the traditional and Islamic stock markets from a worldwide standpoint. In this study, two equivalent pairs of Western and Islamic stock index, the Dow Jones Index and the FTSE Indexes, are taken into account. The results show that the outbreak generates same levels of volatility in both financial stock markets using Wavelet-based multi-time-scales approaches on the everyday data from 21 January until 27 November 2020. The decoupling theory of the Islamic financial stock market from the conventional market is refuted by the findings, which also show that both markets are strongly connected and have a strong propensity to move together in the time of the sample.

When Salisu and Shaik (2022), compared to the performance of their conventional equivalents, by asking the research question, do Islamic stocks perform worse or have superior hedge potential? They discovered that, generally speaking, Islamic equities can be utilized as a hedge while conventional stocks are considered as being subject to uncertainty owing to pandemics over a range of time periods.

2.4. ISLAMIC BANKS AND COVID-19:

Rehman et al (2021) investigated how the Coronavirus outbreak has affected Islamic bank indexes in the area of GCC countries. The goal of the study is to determine whether Islamic bank indexes can handle the Coronavirus crisis and determine how well they can react to market volatility. In order to compare the data before and during the Coronavirus crisis, the study examined data which are from the stock exchanges and the Dow Jones Islamic Market Index in the banking sector of GCC countries. Islamic banks have been shown to be capable of responding to the financial also to the economic crisis as well.

About 80 banks across Indonesia, Wijana Et al (2022) aimed to assess and contrast the resilience of Islamic and conventional banking in the time of the Coronavirus outbreak. First, they contrasted how they performed before and after the pandemic. They looked at how pandemic shocks affected each one of their performances. The data was split into two periods: the pre-pandemic period the first Q -2019 until the first Q-2020) and the pandemic period (Q2-2020 – Q2-2021). They tested the impact of shocks using a panel regression model while comparing results using t-test. They discovered that the Covid-19 epidemic primarily affected conventional banking metrics while barely affecting Islamic banking.

Fajri Et al (2022) in the paper which seeks to understand how Indonesian Islamic banks' profitability is impacted by the COVID-19 pandemic and funding for various business sectors. For analysis, an ARDL technique is used. The study's findings indicate that the Coronavirus outbreak has a long-term negative effect on the effectiveness of Islamic banks. Additionally, lending to the transportation, warehousing, and communication industries is linked to quicker short-term financial success.

Almonifi et al (2021), Examined how the Coronavirus outbreak has impacted the performance of the Islamic banking industry in the KSA is the goal of this study. The research examines the development of Al Rajhi Bank both before and after the COVID-19 epidemic. The results demonstrate that Saudi Arabia's Islamic banking sector was not significantly impacted by the COVID-19 issue.

Mirzai et al (2022), made a comparative between the financial stock performance of conventional and Islamic banks in the time of the first stage of Coronavirus crisis from 31 December 2019 until 31 March 2020). After adjusting for a wide range of bank- and country-level factors, they discovered that stock returns of Islamic banks were 10% to 13% greater than those of conventional banks by using a total of 426 banks from 48 countries around the world.

CHAPTER THREE

DATA AND METHODOLOGY

The Islamic and conventional stock Indexes used to analyse the impact of COVID-19 in the field of Islamic stock indexes in the research. The daily Logarithmic return of the indexes were selected. In addition to that the data started before COVID-19 from 2 December 2019 until 22 April 2022, thus VLOOKUP function was used to exclude the extra days from the data. The data was collected from www.investing.com. 16 indexes were selected from 6 countries such as Indonesia, Malaysia, Nigeria, Pakistan, Qatar and USA, 8 indexes were Shariah compliant indexes in contrast to that 8 conventional indexes were selected and the number of observations for each index is shown on table 3. The indexes were chosen in each country in term of the Islamic indexes and also the largest indexes from the conventional one.

The logarithmic return is computed as, $R_{i,t+1} = 100 * \ln(\frac{P_{i,t+1}}{P_{i,t}})$ where P is the Islamic and conventional Indexes. In other word, the Log return was done for the 16 indexes.

Logarithmic returns are often taken when it comes to analysing financial series, to allow comparison with other financial series. Also, the price series of financial assets is not static, so we move on to adopting the first difference to make the series constant, which allows estimating the parameters of the given model. Hudson and Gregoriou (2015).

The research objected to analyse the effect of COVID-19 on the returns and volatility of Islamic and conventional stocks indexes by using ARIMA-X and EGARCH-X models. In keeping with this objective, the Islamic and conventional stocks indexes were used to estimate the financial stock return, and the dummy variable as of number of everyday cases of each country was used to estimate the effect of COVID-19. Maki (2012) cointegration test using the total cases of Covid-19 as an everyday data, and the same with other authors which they used the case such as Gao et al (2022), Anh and Gan (2020), Ashraf (2020), Khan et al (2020), Ashraf (2021), Öztürk et al (2020), Nguyen et al (2021) and Rabhi (2020).

3.1. ECONOMETRIC METHODOLOGY

The effects of COVID-19 on Islamic and conventional stock market indexes were evaluated by using the ARIMA and ARCH/GARCH methodologies. As Bedir, et al. (2022) did. The Islamic and conventional indexes were used to calculate stock returns for both Islamic and conventional, as was described in the Materials section. In order to analyse the effect of COVID-19 on return, the ARIMA approach was applied. As a result, ARIMA-X and GARCH-X models must be created. As indicated in the following equation, ARIMA model:

$$Islamindex_t = u + \sum_{i=1}^p \beta_i Isindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$Convindex_t = u + \sum_{i=1}^p \beta_i Convindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

In Equation (1), μ denotes the constant term, β denotes the coefficients from the Autoregressive (AR) process, and δ denotes the coefficients from the Moving Average (MA) process. Additionally, φ and ε denote the coefficients that, respectively, describe how the coronavirus affects stock and the error term. In this case, it is anticipated that φ will be statistically significant negative. The fact that the datum or data to be used in the analysis remain constant is the most crucial aspect of time-series analysis. Additionally, error terms derived from the study must be devoid of the so-called "white noise" problems of auto-correlation and fluctuation. Brooks and Gujarati (2009).

The following equation illustrates how the COVID-19 has an effect on the return volatility of Islamic and conventional stock indices. Bollerslev created the GARCH model independently (1986). The GARCH model permits the conditional variance to depend on earlier own lags. Brooks (2019). The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model was proposed by Bollerslev (1986), who also developed the ARCH model. Equation 2 demonstrates the GARCH model.

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^q \beta_j \sigma_{t-j}^2$$

In Equation 2, the cardinal numbers are shown as i , when $i = 0, 1, 2 \dots$ up to p , conditional volatility shown as σ_t^2 , residuals shown as ε_t , and the lagged conditional volatility shown as σ_{t-j}^2 . ARCH components shown as α_i and ε_{t-i}^2 , on other side GARCH components was shown as β_j and σ_{t-j}^2 . Using the error terms of the conditional variance as well as the markers and magnitudes of the conditional standard deviation, Nelson, (1991) created the exponential GARCH (EGARCH) model. Equation 3 below depicts the model.

$$\ln(\sigma_t^2) = \alpha_0 + \sum_{j=1}^q \beta_j \ln(\sigma_{t-j}^2) + \sum_{i=1}^p \alpha_i \left| \frac{\varepsilon_{t-i}}{\sigma_{t-i}} \right| + \sum_{k=1}^r \gamma_k \left| \frac{\varepsilon_{t-k}}{\sigma_{t-k}} \right| + \pi Covidcase$$

In the EGARCH model, positive news is signaled by $\varepsilon_{t-i} > 0$, whereas negative news is signaled by $\varepsilon_{t-i} < 0$. Positive news is said to have a α_i influence on conditional variance, whereas negative news has a $\alpha_i + \gamma_i$ effect. Increased volatility in the situation $\gamma_i > 0$, also known as the leverage effect at level I is reportedly the bad news. The impact of news is uneven. In Equation (3), v denotes the immediate shock, while π is the effect of COVID-19 on the conditional variance. The ARIMA model was used in this study to produce the mean Equation (3). Information criteria including Akaike, Schwarz, and Hannan-Quinn were used to select the mean equation. As price and price volatility price any news as required by behavioral finance, term π is anticipated to be positive with statistical significance. As a result, large coefficients for the COVID-19 dummy variable are anticipated. The fundamental drawback of GARCH models is that they are inapplicable in situations when an asymmetric effect is typically seen and is recorded from a distinct instability in the case of good and bad news. Asymmetric models interpret upward and downward return trends as bad and good news, respectively. For this reason, we employed the GARCH model in its alternate form, the exponential general autoregressive conditional heteroskedastic (EGARCH). Nelson (1991) created the EGARCH model to address GARCH's shortcomings in handling financial time series. to take into account asymmetric effects between positive and negative asset returns, in particular.

3.1.1. Indonesian Stock Indexes

There are three indexes were selected from Indonesia, two of them were Shariah compliant and one of them was conventional index. Jakarta Islamic Index 70 (JKII70) in Indonesia which contain 70 shares and they are all Shariah compliant and has the highest liquidity in IDX, the index was launched in 2018. also, the Jakarta Islamic Index (JKII) was selected which consists around 30 shares which are Shariah compliant as well as They are most liquid Islamic shares that listed on IDX. and this index was found earlier than JKII70 it was launched on 2000. on the other hand, Jakarta Stock Exchange Composite Index JKSE which launched on 1982 was selected which index of all stocks listed on the regular board of the IDX in Indonesia.

The equation of ARIMA model for Indonesian stock indexes:

$$JKII70index_t = u + \sum_{i=1}^p \beta_i JKII70index_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$JKIIindex_t = u + \sum_{i=1}^p \beta_i JKIIindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$JKSEindex_t = u + \sum_{i=1}^p \beta_i JKSEindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

3.1.2. Malaysian Stock Indexes

In Malaysia the Bursa Malaysia and FTSE Group started, three indexes are selected in this thesis. FTSE Bursa Malaysia Hijrah Shariah FTFBMHS which shariah compliant which consists 30 largest companies. The second index which shariah compliant is FTSE Bursa Malaysia EMAS Shariah FTFBMS and that was launched on 2007 which contains 30 companies as well. conversely, the FTSE Malaysia KLCI KLSE was selected as a conventional index which was launched in 2009.

The equation of ARIMA model for Malaysian stock indexes:

$$FTFBMHSindex_t$$

$$= u + \sum_{i=1}^p \beta_i FTFBMHSindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$FTFBMSindex_t = u + \sum_{i=1}^p \beta_i FTFBMSindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$KLSEindex_t = u + \sum_{i=1}^p \beta_i KLSEindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

3.1.3. Nigerian Stock Indexes

in Lagos the capital of Nigeria NSE stock exchange was founded in 1960. Here we have shown three indexes NSE 30 NGSE30 and NSE All-Share NGSEINDEX represent the conventional side and on the other hand NSE Lotus Islamic NGSELOTUS for the shariah compliant which was founded in 2004 and contains 15 companies.

$$NGSE30index_t = u + \sum_{i=1}^p \beta_i NGSE30index_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$NGSEINDEXindex_t$$

$$= u + \sum_{i=1}^p \beta_i NGSEINDEXindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$NGSELOTUSindex_t$$

$$= u + \sum_{i=1}^p \beta_i NGSELOTUSindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

3.1.4. Pakistani Stock Indexes:

In 1991 the first index was launched in Pakistan which called Karachi 100 KSE and that represents the conventional side of the study. In contrast of that All Shares Islamic Index of Pakistan KMIAS was selected to represent the shariah compliant.

$$KSEindex_t = u + \sum_{i=1}^p \beta_i KSEindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$KMIASindex_t = u + \sum_{i=1}^p \beta_i KMIASindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

3.1.5. Qatari Stock Indexes

In Qatar in 2018 the first Islamic stock index was launched it is called QE Al Rayan Islamic QERI which consists of 20 companies. On the other side QE General QSI was selected to be the representor of conventional stock index which was established in 1995 and started 1997 officially in these both indexes were selected to be examined.

$$QERIindex_t = u + \sum_{i=1}^p \beta_i QERIindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$QSIindex_t = u + \sum_{i=1}^p \beta_i QSIindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

3.1.6. USA Stock Indexes

The largest indexes have been chosen one of them shariah compliant Dow Jones Islamic Market International Titans 100 DJI100X which was launched in 1999 on the other side we choose S&P 500 SPX and Nasdaq 100 NDX.

$$DJI100Xindex_t = u + \sum_{i=1}^p \beta_i DJI100Xindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$SPXindex_t = u + \sum_{i=1}^p \beta_i SPXindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

$$NDXindex_t = u + \sum_{i=1}^p \beta_i NDXindex_{t-i} + \sum_{k=1}^q \delta_k e_{t-k} + \varphi_1 COVIDcase + \varepsilon_t$$

Table 3. The Selected Islamic and Conventional Indexes

Country	Islamic index	symbol	Conventional index	Symbol	Observations
Indonesia	Jakarta Islamic 70	JKII70	---	---	582
Indonesia	Jakarta Islamic	JKII	---	---	582
Indonesia	---	---	Jakarta Stock Exchange Composite Index	JKSE	582
Malaysia	FTSE Bursa Malaysia Hijrah Shariah	FTFBMHS	---	---	588
Malaysia	FTSE Bursa Malaysia EMAS Shariah	FTFBMS	---	---	588
Malaysia	---	---	FTSE Malaysia KLCI	KLSE	588
Nigeria	---	---	NSE 30	NGSE30	592
Nigeria	---	---	NSE All Share	NGSEINDEX	592
Nigeria	NSE Lotus Islamic	NGSELOTUS	---	---	592
Pakistan	All Shares Islamic Index of Pakistan	KMIAS	---	---	597
Pakistan	---		Karachi 100	KSE	597
Qatar	QE Al Rayan Islamic	QERI	---		597
Qatar			QE General	QSI	597
USA	Dow Jones Islamic Market International Titans 100	DJI100X	---	---	624
USA	---	---	S&P 500	SPX	624
USA	---	---	Nasdaq 100	NDX	624

CHAPTER FOUR

EMPIRICAL RESULT AND DISCUSSIONS

The use of data that complies with time-series assumptions is the most crucial factor to take into account when performing a time-series analysis. The normal distribution and series constancy are two of these presumptions. This study used the ADF tests recommended by Dickey and Fuller (1981) and the PP tests recommended by Phillips and Perron to examine unit root testing (1988). The unit root test findings and descriptive data for the Islamic and conventional indexes and returns series are shown in Table 3-8 below.

As shown in Table 3-8, the ADF and PP unit root tests reveal that none of the Islamic and conventional indexes are constant at level value. Analysing with non-constant series could produce different outcomes in time-series analysis. As a result, the first difference between the conventional and Islamic indexes was determined. The return series Islamic and conventional indexes level value ADF and PP unit root tests were determined to be constant at a 1% significance level after the logarithmic first difference was calculated.

Table 4. Descriptive Statistics for Indonesia

	JKII	JKII70	JKSE
Mean	-0.002165	-0.000137	0.039347
Standard D.	1.596180	1.536165	1.255602
Skewness	0.476213	0.418385	0.246104
Kurtosis	12.93535	13.05070	13.49312
Jarque-Bera (Prob.)	2415.745*** (0.000)	2466.631*** (0.000)	2675.937*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-12.26368*** (0.000)	-12.07836*** (0.000)	-12.10733*** (0.000)
Phillips-Perron (PP) (Prob.)	-24.56118*** (0.000)	-24.22743*** (0.000)	-23.60153*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By estimating the descriptive statistics of the indexes in Indonesia (JKII70) and (JKII) which Islamic indexes, on the other hand the (JKSE) index which represent the conventional one. we note that the mean of the (JKII70) was -0.000137 also the mean of

(JKII) was minus too at -0.002165, however the mean of (JKSE) was estimated at 0.039347. by comparing both of them we can say that the Islamic index are better than the conventional one and they also achieved the highest value. Moreover, to estimate the size of the change we take the value of the standard deviation, which was relatively greater in the Islamic indexes for instance the standard deviation of index (JKII) is 1.596180 and 1.536165 (JKII70) however in the (JKSE) index was estimated at 1.255602. These numbers show the greater dispersion in Islamic indexes. The Skewness in all indexes differs from zero and has a positive value, which indicates that the tail of the distribution is long on the right, which makes the returns of the all indexes affected by positive shocks more than negative ones and that is more in Islamic indexes than the conventional index. All indexes were also characterized by a kurtosis greater than the value of 3. Moreover, kurtosis shows us that investing in conventional index highly risky than the Islamic one. According to Jarque-Bera, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test as it called (unit root test) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is convenient for GARCH model as the null hypothesis was rejected. As we can see in the Table 4.

Table 5. Descriptive Statistics for Malaysia

	FTFBMHS	FTFBMS	KLSE
Mean	0.005952	0.007772	0.009898
Standard D.	1.039760	0.947025	0.955444
Skewness	0.070118	-0.022960	-0.367086
Kurtosis	6.733588	10.55606	12.83374
Jarque-Bera (Prob.)	342.0040 *** (0.000)	1398.857*** (0.000)	2382.415*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-24.32289 *** (0.000)	-25.00400*** (0.000)	-15.28085*** (0.000)
Phillips-Perron (PP) (Prob.)	-24.35518 *** (0.000)	-25.07299*** (0.000)	-24.30873*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By looking at the descriptive statistics of the indexes in Malaysia (FTFBMHS) and (FTFBMS) which representing the Islamic indexes, conversely the (KLSE) index which represents the conventional one. The mean of the (FTFBMHS) was 0.005952 also the

mean of (FTFBMS) was at 0.007772, nevertheless the mean of (KLSE) was estimated at 0.009898. by comparing all of indexes we can say that the first two which Sariah compliant are lower than the conventional one which can be better as well. Moreover, the standard deviation was taken to estimate the size of the change, which was relatively greater in the one of the Islamic indexes (FTFBMHS) and its the standard deviation is 1.039760 which was the highest among all, and (FTFBMS) is 0.947025 however in the (KLSE) index was estimated at 0.955444. These numbers show the greater dispersion in Islamic index (FTFBMHS). The Skewness in (FTFBMS) differs from zero and has a positive value, which indicates that the tail of the distribution is long on the right, which makes the returns of the all indexes affected by positive shocks more than negative ones however not in (FTFBMS) and (KLSE) which differs from zero and has a negative value. This indicates that the distribution has a long tail to the left, which makes the returns of the two indices affected by negative shocks more than positive ones. All indexes were also characterized by a kurtosis greater than the value of 3. Furthermore, kurtosis shows us that investing in conventional index highly risky than the Islamic one the same result was found in Indonesia. According to Jarque-Bera, Augmented, Dickey-Fuller (ADF) and Phillips-Perron (PP) which testing the (unit root) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is appropriate for GARCH model as the null hypothesis was rejected. As we can see in the table 5.

Table 6. Descriptive Statistics for Nigeria

	NGSE30	NGSEINDEX	NGSELOTUS
Mean	0.085355	0.101774	0.102162
Standard D.	0.981220	0.899533	1.023114
Skewness	0.572177	0.701575	0.766762
Kurtosis	11.60400	11.68986	9.458353
Jarque-Bera (Prob.)	1858.347*** (0.000)	1911.237*** (0.000)	1086.863*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-12.71398*** (0.000)	-12.58320*** (0.000)	-19.64543*** (0.000)
Phillips-Perron (PP) (Prob.)	-19.14250*** (0.000)	-19.05952*** (0.000)	-20.08562*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By looking at the descriptive statistics of the indexes in Nigeria (NGSE30) and (NGSEINDEX) which representing the conventional indexes, conversely the (NGSELOTUS) index which represents the Islamic one. The mean of the (NGSE30) is 0.085355 also the mean of (NGSEINDEX) is at 0.101774, nevertheless the mean of (NGSELOTUS) is estimated at 0.102162. by comparing all of indexes we can say that the first two which conventional indexes are lower than the Islamic index which can be better as well. Moreover, the standard deviation was taken to estimate the size of the change, which was relatively greater in the Islamic index (NGSELOTUS) and its the standard deviation is 1.023114 which was the highest among all, and (NGSE30) 0.981220 however in the (NGSEINDEX) index was estimated at 0.899533. These numbers show the greater dispersion in Islamic index (NGSELOTUS). The Skewness in in all indexes differs from zero and has a positive value, which indicates that the tail of the distribution is long on the right, which makes the returns of the all indexes affected by positive shocks more than negative ones. All indexes were also characterized by a kurtosis greater than the value of 3. Furthermore, kurtosis shows us that investing in conventional indexes highly risky than the Islamic one the same result was found in Malaysia and Indonesia. According to Jarque-Bera, Augmented, Dickey-Fuller (ADF) and Phillips-Perron (PP) which testing the (unit root) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is appropriate for GARCH model as the null hypothesis was rejected. As we can see in the Table 6.

Table 7. Descriptive Statistics for Pakistan

	KMIAS	KSE
Mean	0.041273	0.035528
Standard D.	1.255909	1.230196
Skewness	-0.611575	-0.886150
Kurtosis	7.748489	8.805958
Jarque-Bera (Prob.)	598.1005*** (0.000)	916.6486*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-22.03047*** (0.000)	-21.91598*** (0.000)
Phillips-Perron (PP) (Prob.)	-22.20505*** (0.000)	-22.12806*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By looking at the descriptive statistics of the indexes in Pakistan (KMIAS) which Islamic index, on the contrary the (KSE) index which conventional index. The mean of the (KMIAS) is 0.041273, nevertheless the mean of (KSE) is estimated at 0.035528. by comparing both indexes, we can say that the conventional index is lower than the Islamic index which can be better as well. Moreover, the standard deviation was taken to estimate the size of the change, which was relatively greater in the Islamic index (KMIAS) and its the standard deviation is 1.255909, and (KSE) 1.230196. These numbers show the greater dispersion in Islamic index (KMIAS). The Skewness in in both differs from zero and has a negative value, which indicates that the tail of the distribution is long on the left, which makes the returns of the all indexes affected by negative shocks more than positive ones. All indexes were also characterized by a kurtosis greater than the value of 3. Furthermore, kurtosis shows us that investing in conventional indexes highly risky than the Islamic one the same result was found in Malaysia, Indonesia and Nigeria. According to Jarque-Bera, Augmented, Dickey-Fuller (ADF) and Phillips-Perron (PP) which testing the (unit root) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is appropriate for GARCH model as the null hypothesis was rejected. As we can see in the table 7.

Table 8. Descriptive Statistics for Qatar

	QERI	QSI
Mean	0.068543	0.058693
Standard D.	0.875247	0.903325
Skewness	-1.878205	-2.249123
Kurtosis	24.81381	27.91525
Jarque-Bera (Prob.)	12187.58*** (0.000)	15944.98*** (0.000)
Augmented Dickey-Fuller (ADF) (Prob.)	-21.97770*** (0.000)	-22.89944*** (0.000)
Phillips-Perron (PP) (Prob.)	-21.98902*** (0.000)	-22.90714*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By estimating the descriptive statistics of the indexes in Qatar (QERI) which Islamic index, in contrast the (QSI) index which represent the conventional one. we note

that the mean of the (QERI) was 0.068543, nevertheless the mean of (QSI) was estimated at 0.058693. by comparing both of them we can say that the conventional index is better than the Islamic one and they also achieved the highest value. Likewise, to estimate the size of the change we take the value of the standard deviation, which was relatively greater in the conventional index for instance the standard deviation of index (QSI) is 0.903325 however in the (QERI) index was estimated at 0.875247. These numbers show the greater dispersion in conventional index. The Skewness in both differs from zero and has a negative value, which indicates that the tail of the distribution is long on the left, which makes the returns of the all indexes affected by negative shocks more than positive ones. All indexes were also characterized by a kurtosis greater than the value of 3. Moreover, kurtosis shows us that investing in conventional index highly risky than the Islamic one which the same result of previous countries. According to Jarque-Bera, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test as it called (unit root test) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is convenient for GARCH model as the null hypothesis was rejected. As we can see in the table 8.

Table 9. Descriptive Statistics for USA

	DJI100X	NDX	SPX
Mean	0.027244	0.074712	0.050545
Standard D.	1.122878	1.854163	1.597567
Skewness	-0.571605	-0.461402	-0.604289
Kurtosis	10.81701	9.248558	15.29761
Jarque-Bera (Prob.)	1622.725*** (0.000)	1037.297*** (0.000)	3969.991*** (0.000)
Augmented Dickey- Fuller (ADF)	-22.67816*** (0.000)	-7.488235*** (0.000)	-7.158998*** (0.000)
Phillips-Perron (PP)	-22.70079*** (0.000)	-32.25752*** (0.000)	-32.14492*** (0.000)

Note: In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

By looking at the descriptive statistics of the indexes in the USA (NDX) and (SPX) which representing the conventional indexes, conversely the (DJI100X) index which represents the conventional one. The mean of the (NDX) is 0.074712 also the mean of

(SPX) was at 0.050545, nevertheless the mean of (DJI100X) was estimated at 0.027244. by comparing all of indexes we can say that the Sariah compliant index is lower than the conventional one which can be better as well. Moreover, the standard deviation was taken to estimate the size of the change, which was relatively greater in the conventional indexes (NDX) and its the standard deviation is 1.854163 which was the highest among all, and (SPX) is 1.597567 however in the (DJI100X) index was estimated at 1.122878. These numbers show the greater dispersion in conventional indexes. The Skewness in all indexes differ from zero and have a negative value, which indicates that the tail of the distribution is long on the left, which makes the returns of the all indexes affected by negative shocks more than positive. All indexes were also characterized by a kurtosis greater than the value of 3. Furthermore, kurtosis shows us that investing in SPX index highly risky than the others. According to Jarque-Bera, Augmented, Dickey-Fuller (ADF) and Phillips-Perron (PP) which testing the (unit root) the indexes are not constant at level value as the probability was 0 the that is why first difference of all Indexes were calculated and show us that this data is appropriate for GARCH model as the null hypothesis was rejected.as we can see in the table 9.

By looking at the graphical representation of the return of each index in figure 1 to the figure 16, we note the continuous fluctuations of all indicators throughout the study periods with the recording of critical values, but in general we notice the same trend in the curves, as all indicators recorded high volatility in recent times. With the emergence of great dispersal in a period that marks the beginning of the crisis with the spread of the COVID-19 pandemic. Correspondingly it has been notes that each index in each country goes almost side by side with increasing or decreasing however that is not the case from one country to another one. for instance. in Nigeria the volatility is too high in the three indexes nevertheless that is not the case in Indonesia and Malaysia and they graph look like each other with slightly difference.

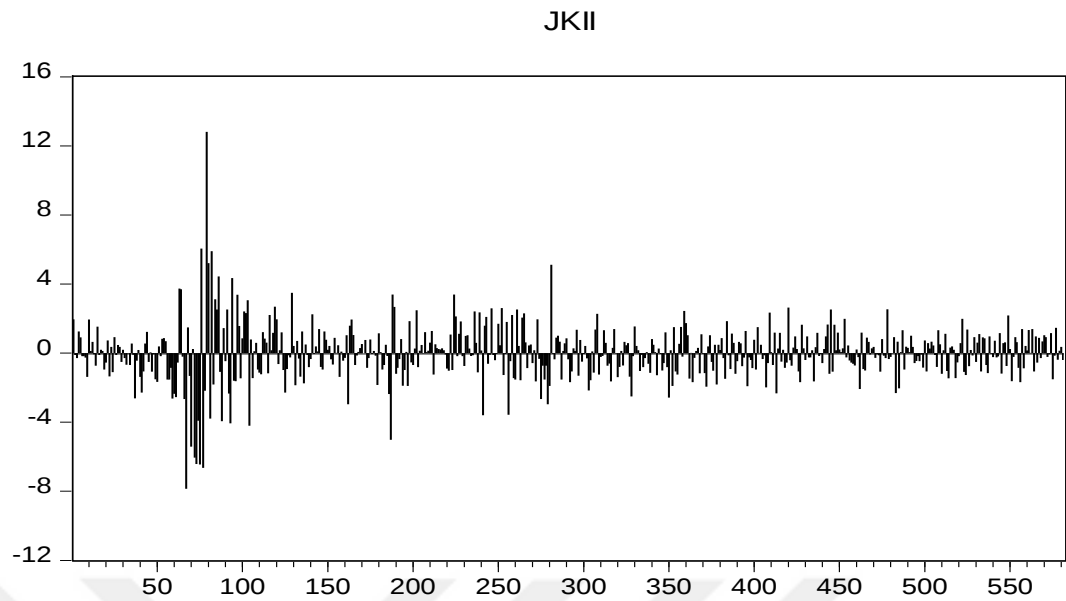


Figure 1. Graphical Representation of the Return of the JKII Index

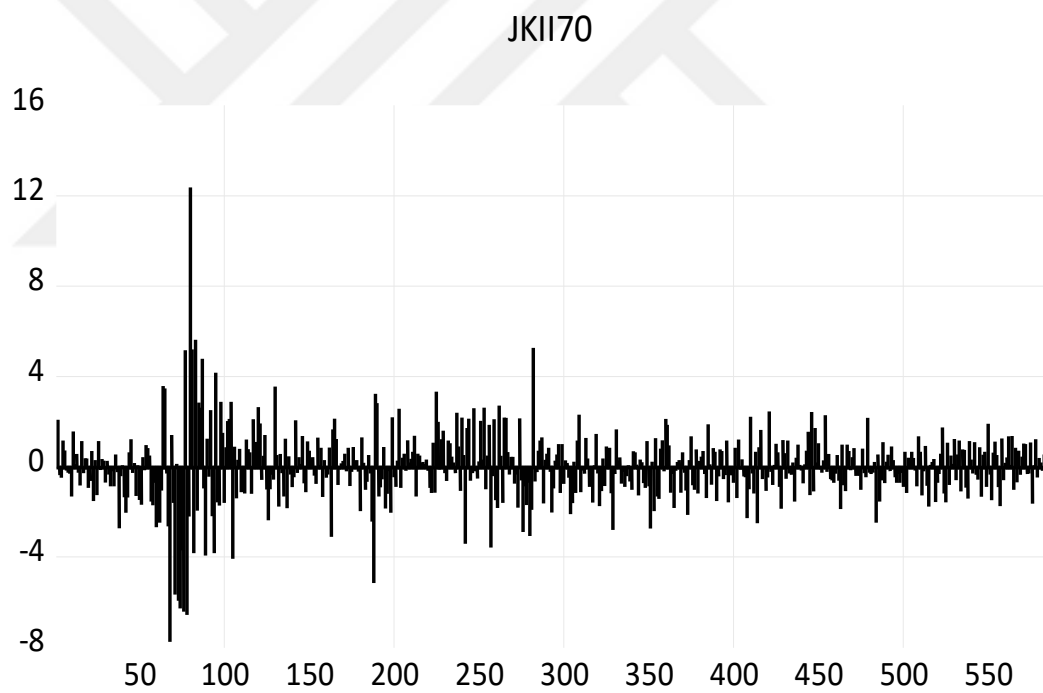


Figure 2. Graphical Representation of the Return of the JKII70 Index

JKSE

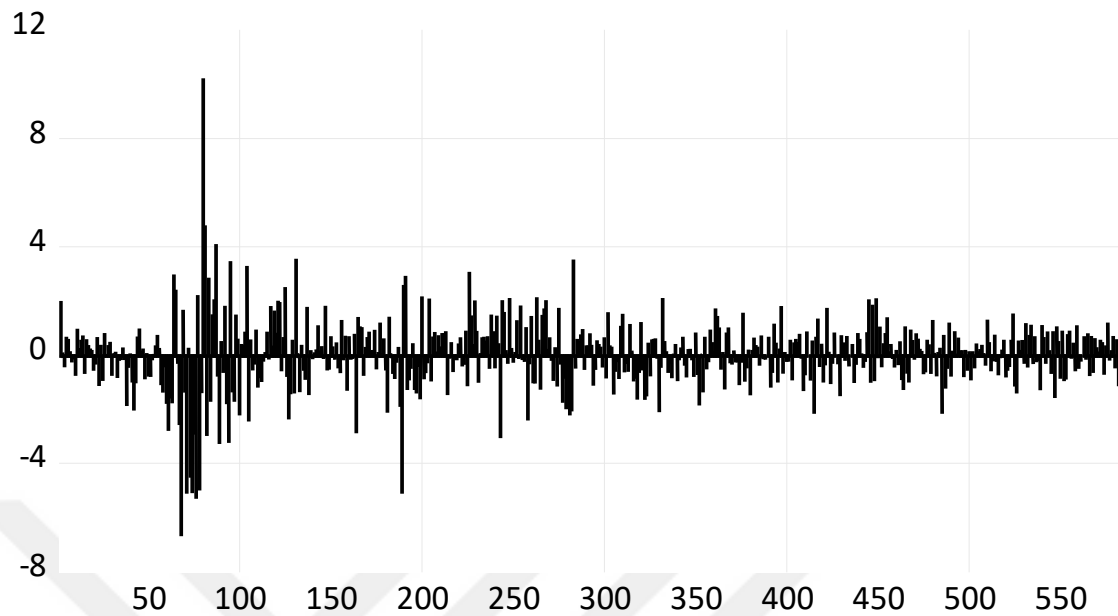


Figure 3. Graphical Representation of the Return of the JKSE Index

FTFBMHS

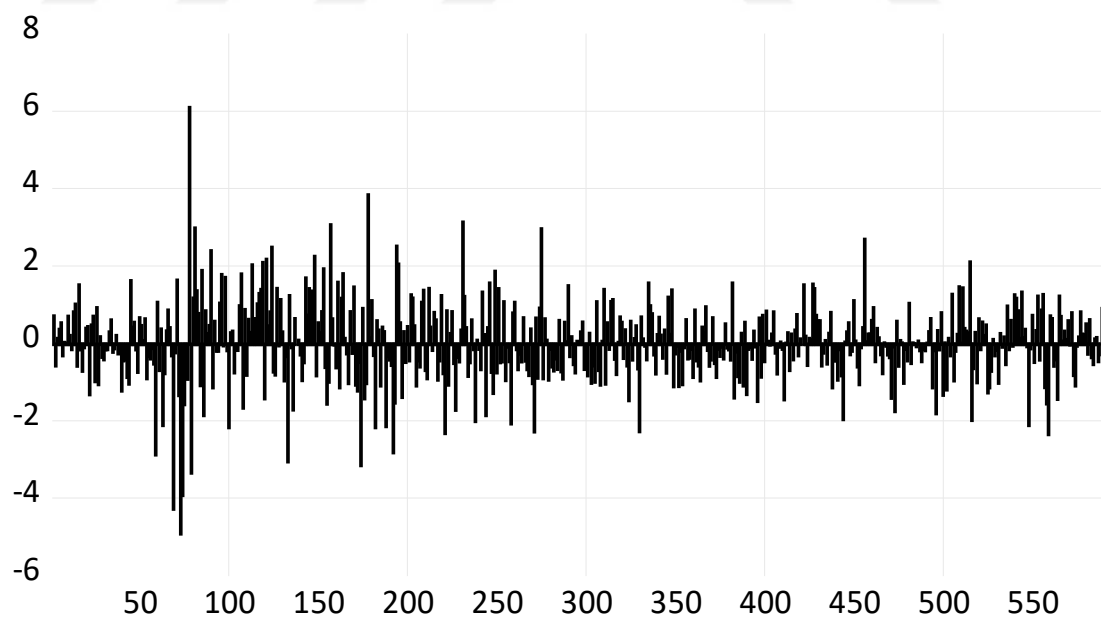


Figure 4. Graphical Representation of the Return of the FTFBMHS Index

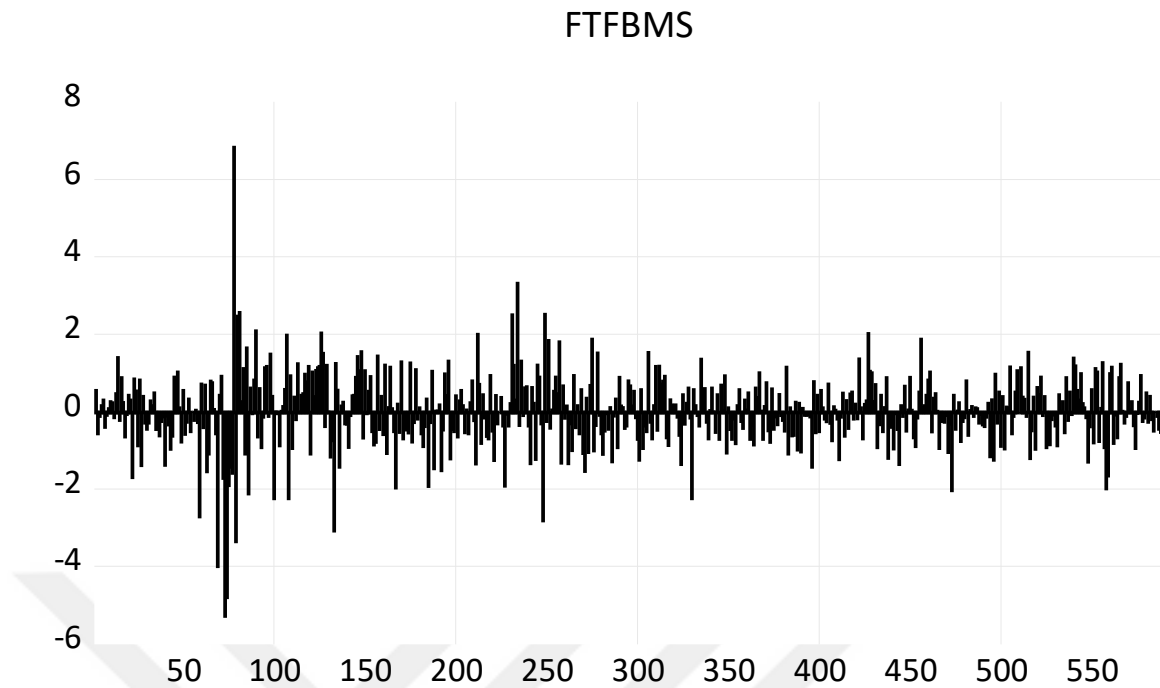


Figure 5. Graphical Representation of the Return of the FTFBMS Index

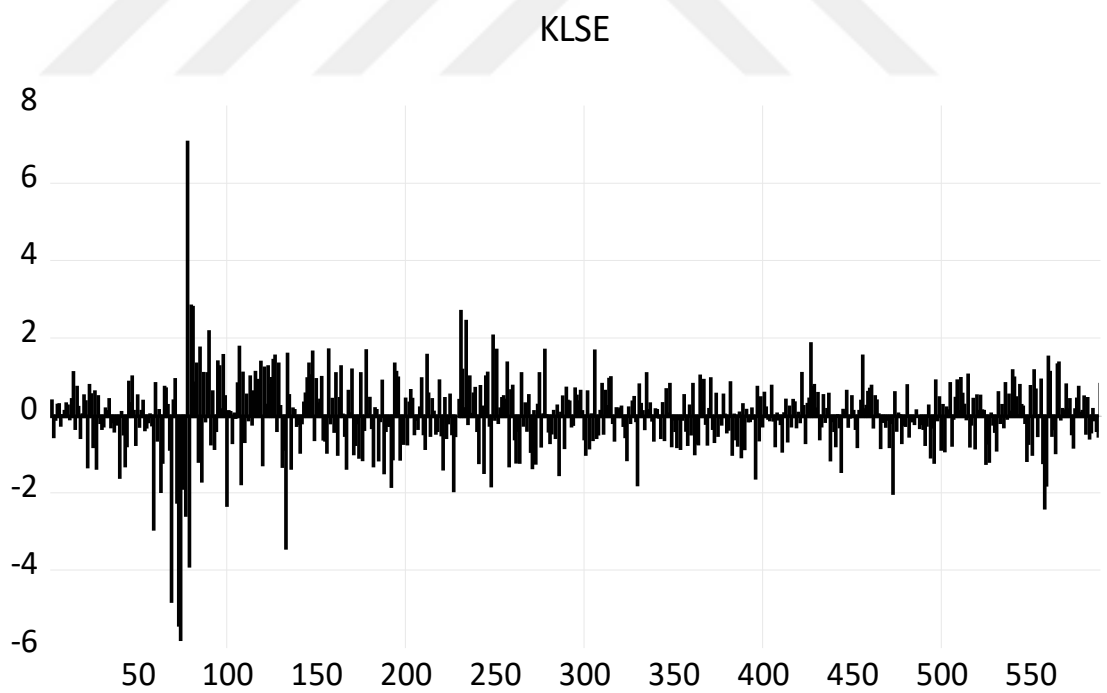


Figure 6. Graphical Representation of the Return of the KLSE Index

NGSE30

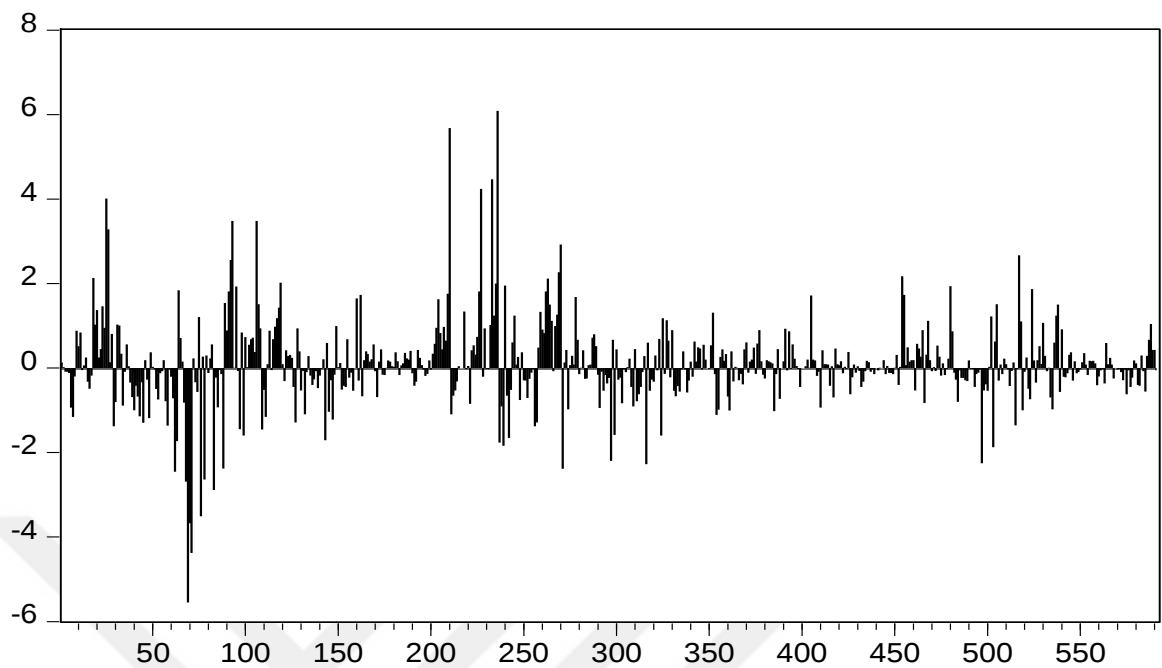


Figure 7. Graphical Representation of the Return of the NGSE30 Index

NGSEINDEX

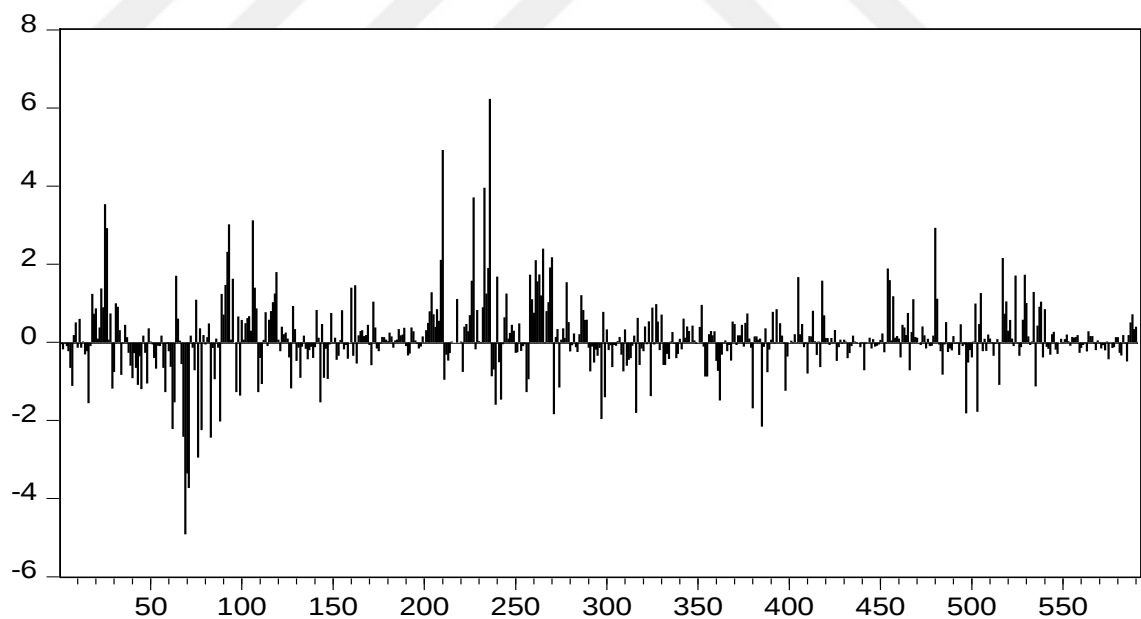


Figure 8. Graphical Representation of the Return of the NGSEINDEX Index

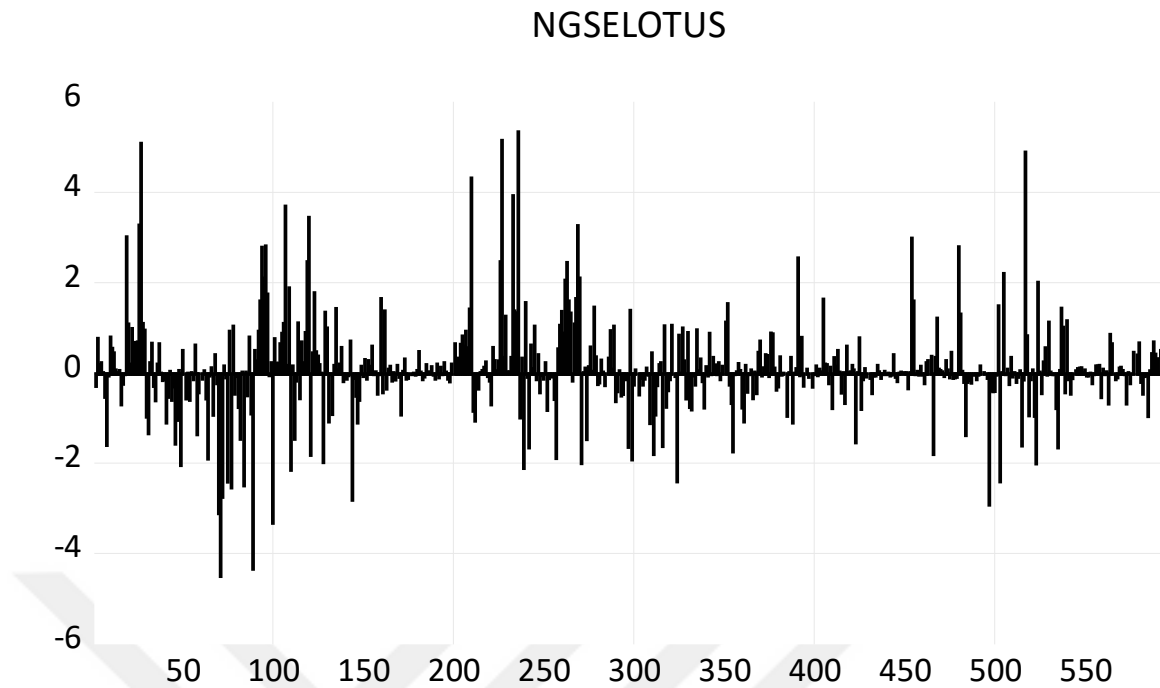


Figure 9. Graphical Representation of the Return of the NGSELOTUS Index

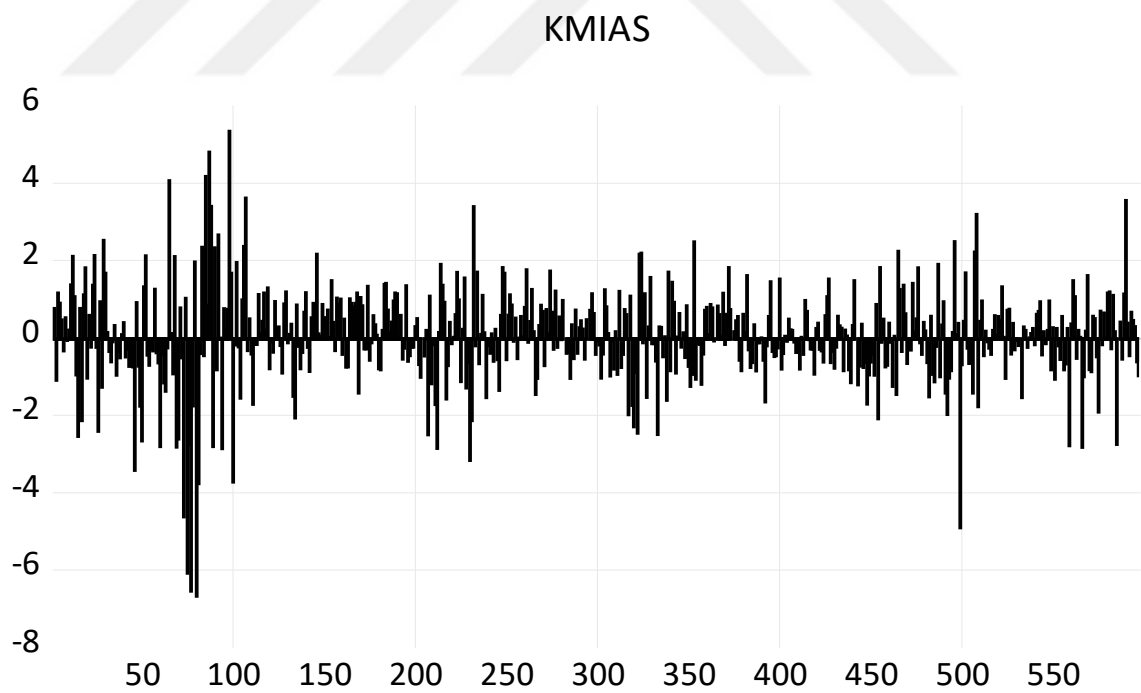


Figure 10. Graphical Representation of the Return of the KMIAS Index

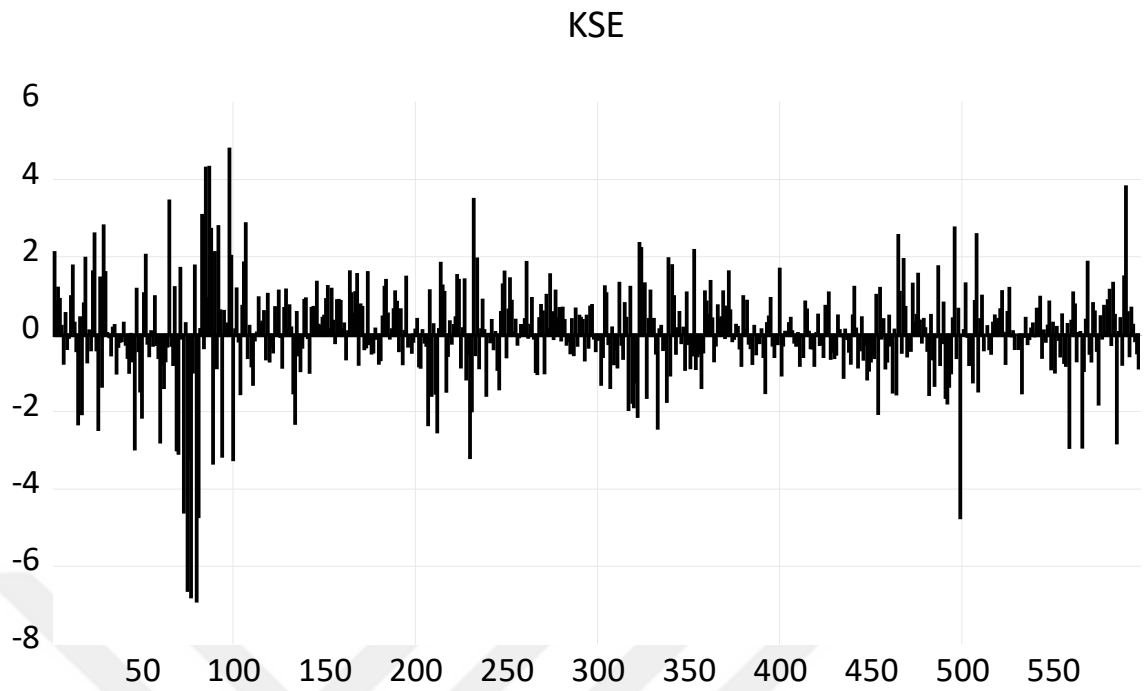


Figure 11. Graphical Representation of the Return of the KSE Index

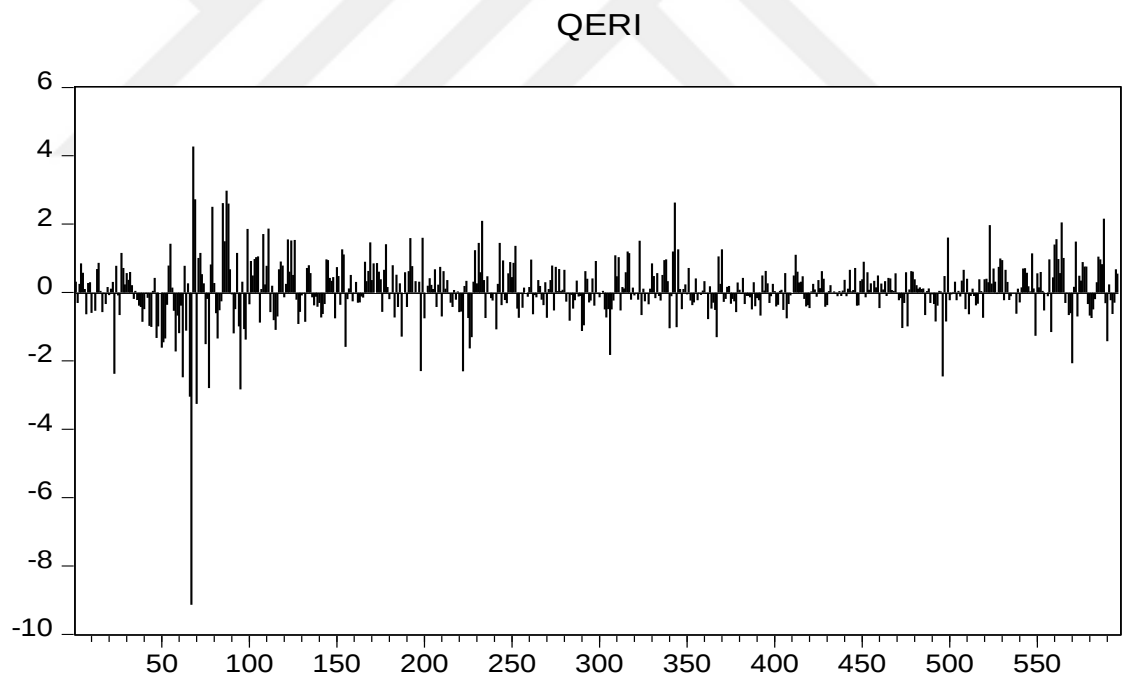


Figure 12. Graphical Representation of the Return of the QERI Index

QSI

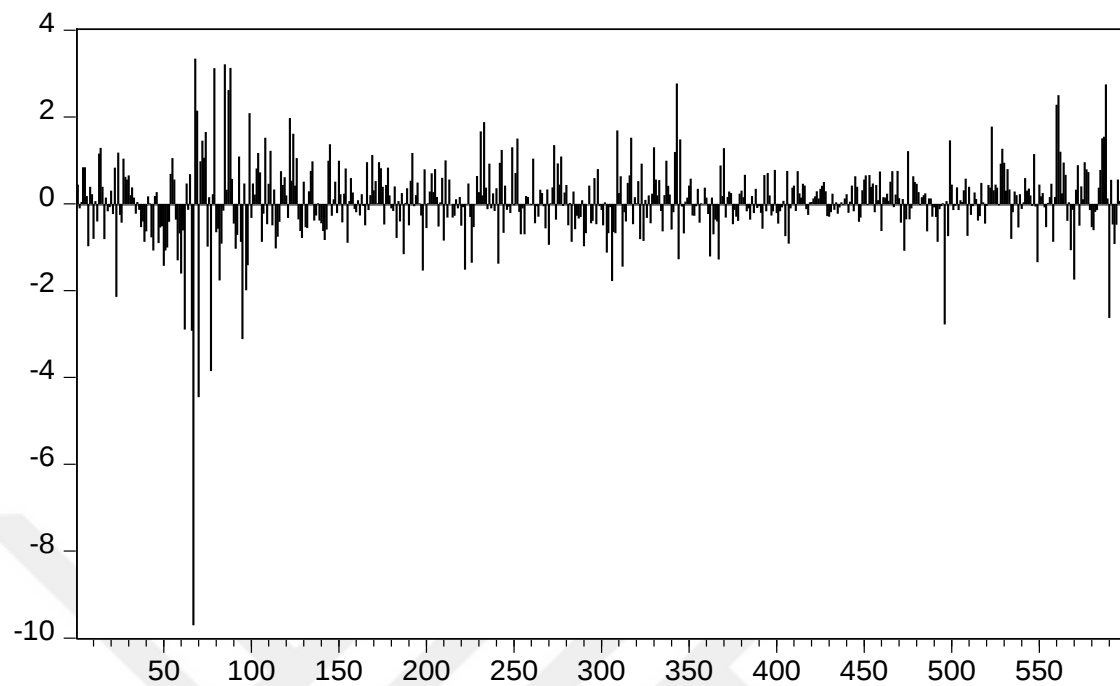


Figure 13. Graphical Representation of the Return of the QSI Index

DJI100X

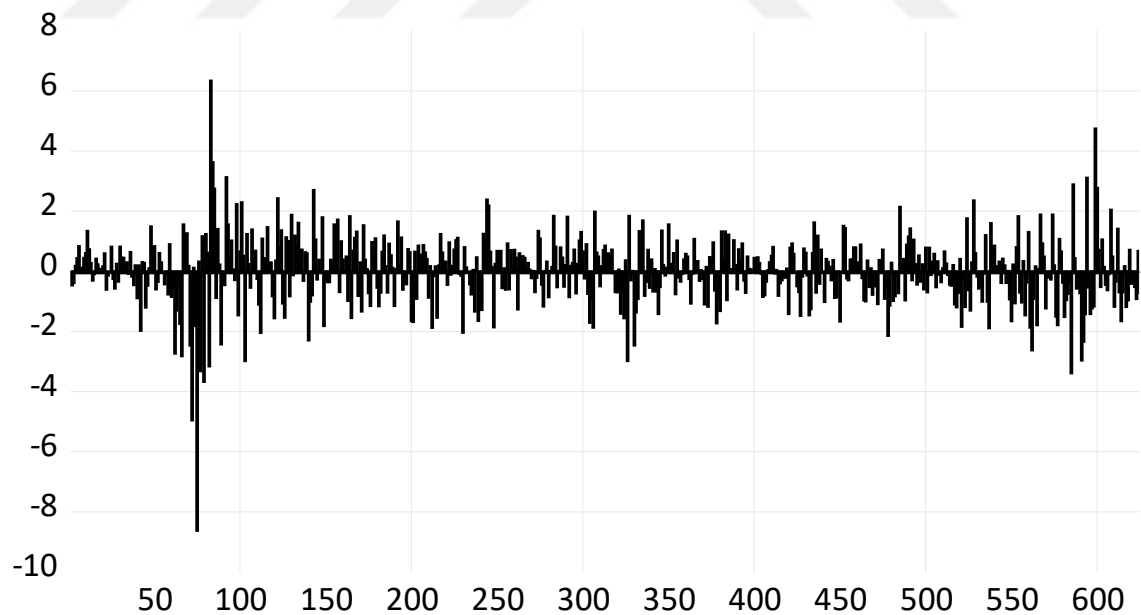


Figure 14. Graphical Representation of the Return of the DJI100X Index

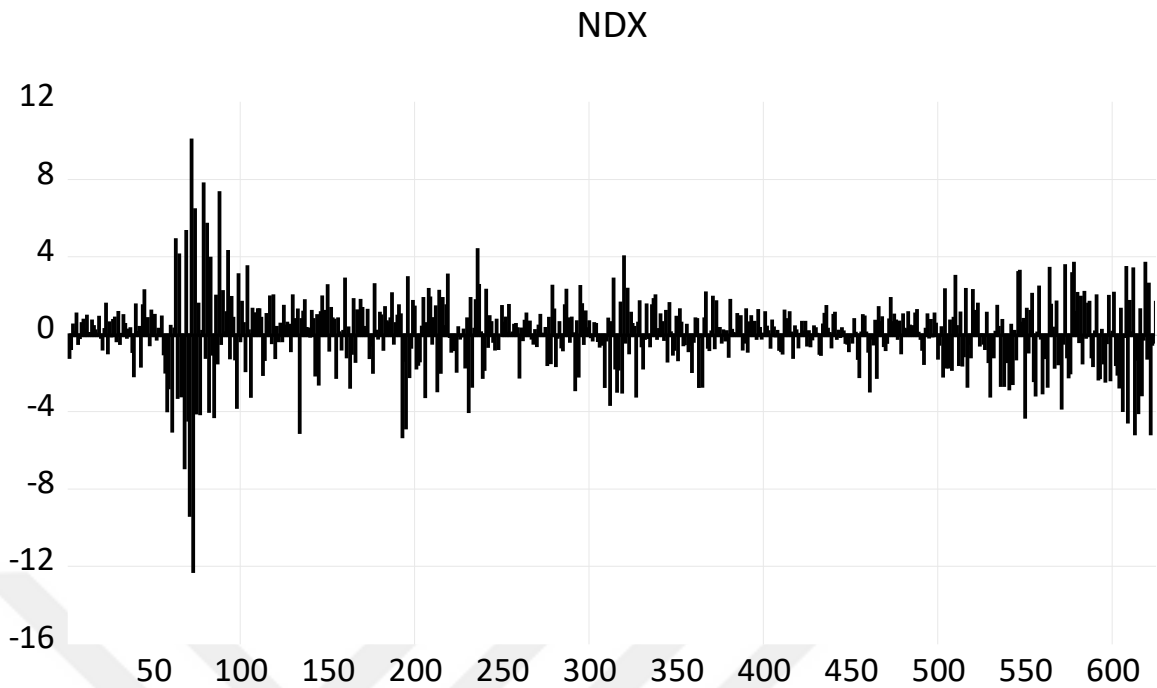


Figure 15. Graphical Representation of the Return of the NDX Index

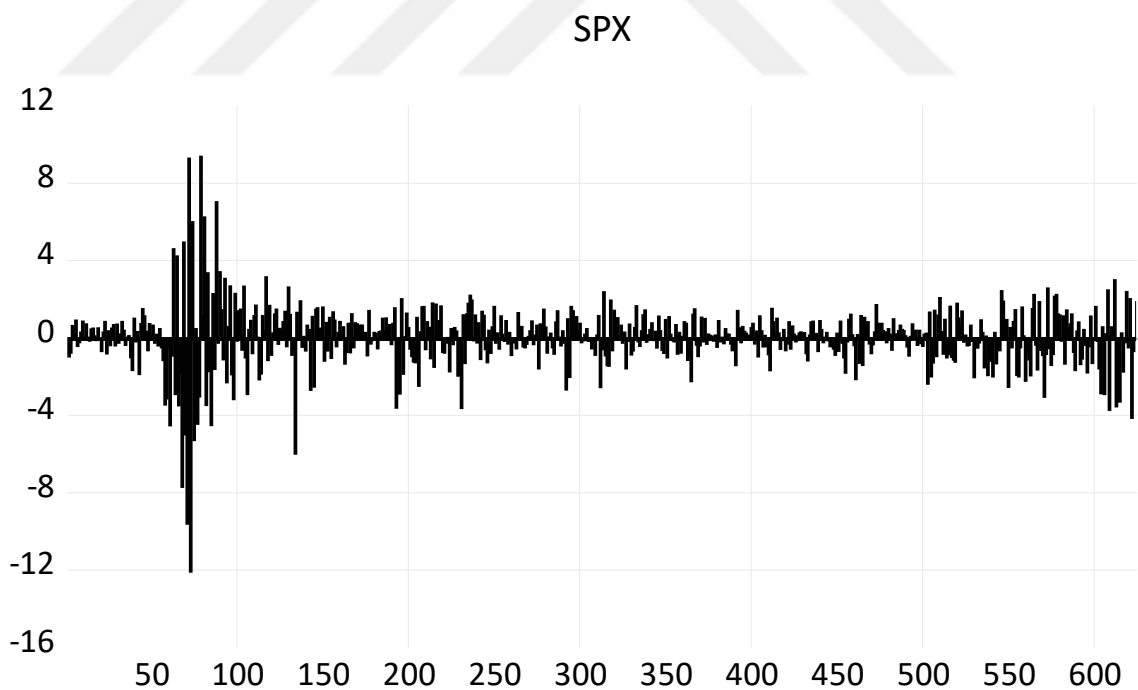


Figure 16. Graphical Representation of the Return of the SPX Index

Schwarz's information criterion was used to choose which model to use for the mean equation, as shown in Table 9 for the index JKII. The error terms from the ARIMA

(9, 0, 8) model were used to create the variance equation. Its own long-term volatility has a beneficial impact on the conditional variance ($\beta = 0.938230$). The asymmetrical effects ($\gamma \neq 0$) are also depicted by the EGARCH model. The coefficient is negative ($-1.39E-08$) at the 5% level of significance for the effect of COVID-19 on conditional variance, often known as volatility, which is significant for the purposes of this study. This finding indicates that COVID-19 cases have an impact on the return volatility of the JKII index, which is consistent with behavioural finance. Maki (2012) cointegration test using the total cases of Covid-19 as an everyday data, and the same with other authors which they used the COVID-19 new cases such as Gao et al (2022), Anh and Gan (2020), Ashraf (2020), Khan et al (2020), Ashraf (2021), Öztürk et al (2020), Nguyen et al (2021) and Rabhi (2020).

Al-Awadhi (2020) also highlighted in his analysis for sub-sectors during the COVID-19 period that some sectors (Transportation, Hotels, Beverages) were badly affected while others (Medicine and IT) were positively affected. In other words, investors price the equities using a variety of information, which affects return volatility. As a result, it may be said that investors should diversify their portfolio away from sectors that may incur income loss in their balance sheets as a result of COVID-19 and toward sectors that can invest income at this time. The Islamic and conventional sectors, on the other hand, are anticipated to be badly impacted by a phenomenon like COVID-19, which has negative effects on practically all sectors based on the dominance of bad news on volatility compared to positive news. Figure 1 displays the conditional standard deviation of the JKII Index. As of the middle of February 2020, a high jump is noticeable. According to the real options theory, investments would decline as uncertainty rises Dixit and Pindyck, (1995). Also, we can say that there is asymmetry which refers to the fact that volatility is higher during periods when returns are negative. Bekaert and Wu (2000) mentioned. Moreover, the According to the findings, higher volatility is associated with a greater likelihood of a market decline, whereas lower volatility is associated with a greater likelihood of a market rise. This information on long-term stock market volatility can be used by investors to align their portfolios with the predicted returns.

Table 9. EGARCH-X Model Results for JKII Index

Variable	Coefficient		z-Statistic
Mean Equation			
<i>Constant</i>	-0.007519		-0.142825
<i>AR(1)</i>	-1.164393		-1.132676
<i>AR(2)</i>	-0.472605		-0.365191
<i>AR(3)</i>	-0.165456		-0.226696
<i>AR(4)</i>	-0.237498		-0.499455
<i>AR(5)</i>	0.475473		0.923347
<i>AR(6)</i>	0.863063		1.621467
<i>AR(7)</i>	0.434412		0.477422
<i>AR(8)</i>	0.115892		0.218063
<i>AR(9)</i>	-0.006552		-0.038545
<i>MA(1)</i>	1.068703		1.043033
<i>MA(2)</i>	0.237778		0.198480
<i>MA(3)</i>	0.078986		0.151849
<i>MA(4)</i>	0.281613		0.720434
<i>MA(5)</i>	-0.530746		-1.035733
<i>MA(6)</i>	-0.805865		-1.438882
<i>MA(7)</i>	-0.206967		-0.240203
<i>MA(8)</i>	0.035912		0.109898
Variance Equation			
α_0	-0.116482***		-3.045207
α_1	0.220040***		3.993661
γ	-0.089790***		-3.250517
B	0.938230***		46.24394
Π	-1.39E-08**		-2.519901
R ²	0.045656	Akaike info criterion	3.298821
Adjusted R ²	0.016424	Schwarz criterion	3.473464
Durbin-Watson stat	1.759056	Hannan-Quinn criter.	3.366946

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

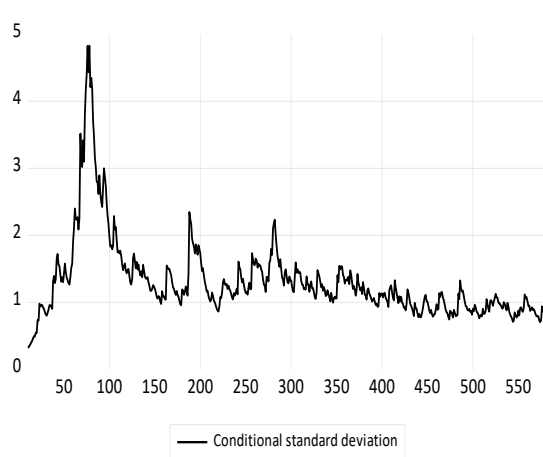


Figure 17. Conditional Standard Deviation of JKII Index

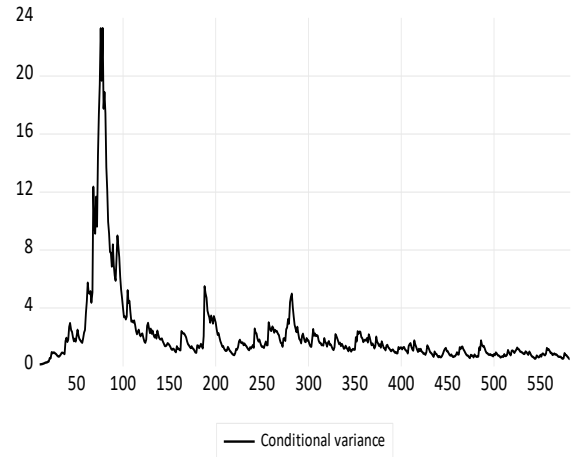


Figure 18. Variance of JKII Index

As indicated in Table 10 for the index JKII70, Schwarz's information criterion was utilized to determine which model to apply with the mean equation. The variance equation was built using the ARIMA (8, 0, 9) model's error terms. The conditional variance benefits from its own long-term volatility ($\beta = 0.941197$). The asymmetrical effects ($\gamma \neq 0$) are likewise described by the EGARCH model. The coefficient indicating the effect of COVID-19 on conditional variance, also known as volatility, is negative ($-1.24E-08$) at the 5% level of significance, which is significant for the objectives of this study. A Durbin-Watson is 1.776054 so, when the score of 2 indicates that there is no autocorrelation issue with the models being projected. A positive correlation is shown by numbers under 2, whilst a negative autocorrelation is indicated by values over 2.

Table 10. EGARCH-X Model Results for JKII70 Index

Variable	Coefficient		z-Statistic
Mean Equation			
<i>Constant</i>	-0.000996		-0.023238
<i>AR(1)</i>	-0.096627		-0.209248
<i>AR(2)</i>	-0.087592		-0.211100
<i>AR(3)</i>	-0.070595		-0.154096
<i>AR(4)</i>	0.030236		0.065910
<i>AR(5)</i>	-0.151425		-0.347922
<i>AR(6)</i>	0.502190		1.401025
<i>AR(7)</i>	0.155889		0.451555
<i>AR(8)</i>	-0.374590		-1.320350
<i>MA(1)</i>	0.014473		0.031172
<i>MA(2)</i>	-0.017666		-0.046036
<i>MA(3)</i>	0.134435		0.332233
<i>MA(4)</i>	-0.061990		-0.151230
<i>MA(5)</i>	0.191417		0.508268
<i>MA(6)</i>	-0.488742		-1.567450
<i>MA(7)</i>	-0.193570		-0.622931
<i>MA(8)</i>	0.481572		1.702604
<i>MA(9)</i>	-0.086081		-1.189531
Variance Equation			
α_0	-0.124251***		-2.834764
α_1	0.216386***		3.675878
γ	-0.081302***		-3.051024
B	0.941197***		42.58811
Π	-1.24E-08**		-2.091776
R ²	0.055477	Akaike info criterion	3.227497
Adjusted R ²	0.026597	Schwarz criterion	3.401905
Durbin-Watson stat	1.776054	Hannan-Quinn criter.	3.295524

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

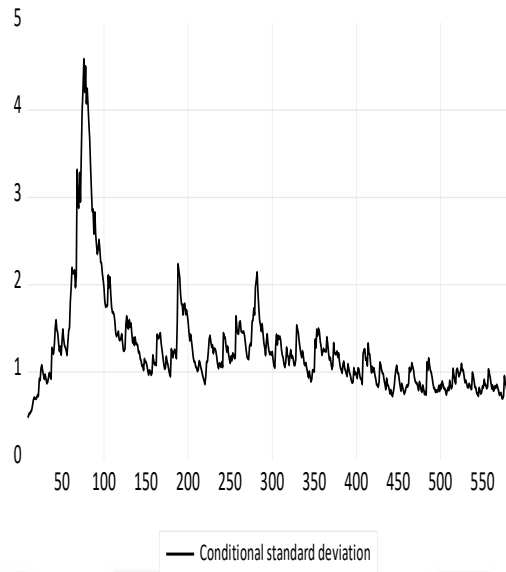


Figure 19. Conditional Standard Deviation of JKII70 Index

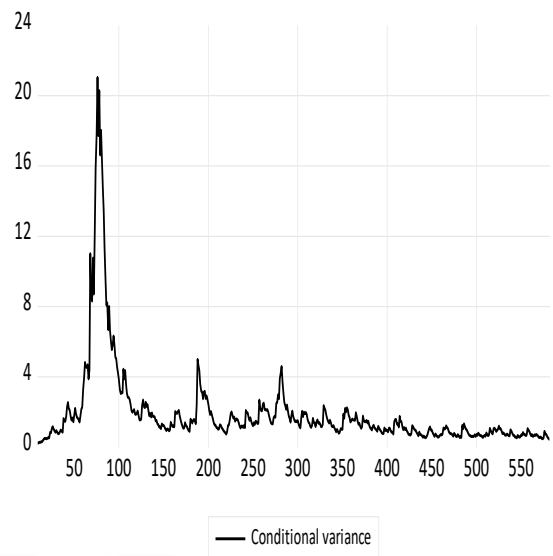


Figure 20. Variance of JKII70 Index

Schwarz's information criterion was used to choose the model to use with the mean equation, as shown in Table 11 for the index JKSE. The error terms of the ARIMA (9, 0, 10) model were used to construct the variance equation. The long-term volatility of the conditional variance ($\beta = 0.918027$) is advantageous. The EGARCH model also adequately describes the asymmetrical effects ($\gamma \neq 0$). At the 5% level of significance, the coefficient reflecting the influence of COVID-19 on conditional variance, also known as volatility, is negative ($-2.25E-08$), which is significant for the study's goals. Given that the models being projected have a Durbin-Watson score of 2, there is no autocorrelation problem. This score is 1.714556. Numbers under 2 suggest a positive correlation, whereas numbers over 2 imply a negative autocorrelation.

Table 11. EGARCH-X Model Results for JKSE Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	0.050692	1.425372	
AR(1)	0.758544***	3.135240	
AR(2)	0.087551	0.338909	
AR(3)	-0.020596	-0.067129	
AR(4)	-0.352197	-1.528328	
AR(5)	0.013749	0.059005	
AR(6)	0.400572	1.618575	
AR(7)	-0.366860	-1.476287	
AR(8)	-0.247012	-0.836889	
AR(9)	0.448969***	2.615317	
MA(1)	-0.856196***	-3.536320	
MA(2)	-0.077853	-0.299260	
MA(3)	0.183492	0.598769	
MA(4)	0.256253	1.087484	
MA(5)	0.007311	0.032802	
MA(6)	-0.418510*	-1.767453	
MA(7)	0.344883	1.353499	
MA(8)	0.296436	0.986434	
MA(9)	-0.588328***	-3.043795	
MA(10)	0.116030*	1.847503	
Variance Equation			
α_0	-0.145618***	-3.010552	
α_1	0.239745***	3.673320	
γ	-0.084595***	-2.837436	
B	0.918027***	38.92268	
Π	-2.25E-08***	-3.067193	
R ²	0.049091	Akaike info criterion	2.834051
Adjusted R ²	0.016420	Schwarz criterion	3.023881
Durbin-Watson stat	1.714556	Hannan-Quinn criter.	2.908100

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

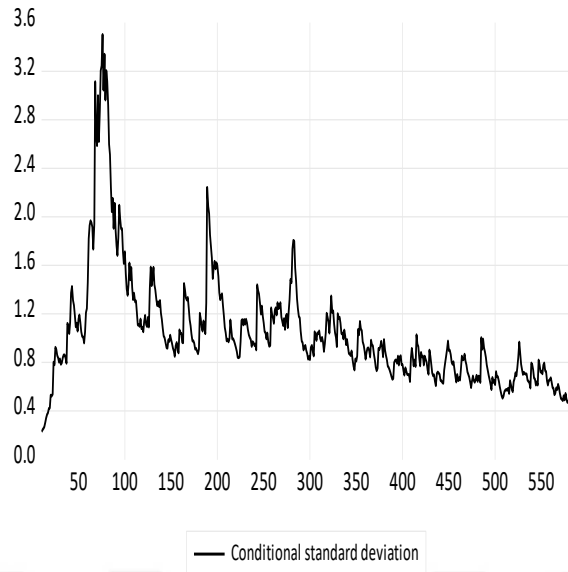


Figure 21. Conditional Standard Deviation of JKSE Index

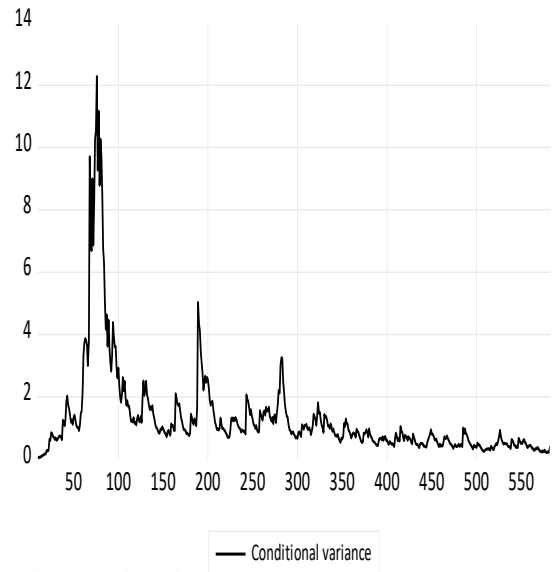


Figure 22. Variance of JKSE Index

As indicated in Table 12 for the index FTFBMHS, the model to employ with the mean equation was chosen using Schwarz's information criterion. The variance equation was built using the ARIMA (9, 0, 8) model's error terms. It is favorable that the conditional variance's long-term volatility ($\beta = 0.958012$) is low. The asymmetrical effects ($\gamma \neq 0$) are likewise properly described by the EGARCH model. The coefficient representing the effect of COVID-19 on conditional variance, commonly known as volatility, is negative ($-1.25\text{E}-08$) at the 5% level of significance, which is significant for the objectives of the study.

Table 12. EGARCH-X Model Results for FTFBMHS Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	-0.016902	-0.551663	
AR(1)	0.076962	1.010028	
AR(2)	0.055338	1.097541	
AR(3)	0.107619	2.288104	
AR(4)	0.753017***	14.66370	
AR(5)	0.145235**	2.167291	
AR(6)	0.068061	1.415470	
AR(7)	0.204632***	4.149901	
AR(8)	-0.819603***	-17.20309	
AR(9)	-0.094441**	-2.019035	
MA(1)	-0.104368	-1.621570	
MA(2)	-0.081872	-1.365939	
MA(3)	-0.084793	-1.462281	
MA(4)	-0.772645***	-12.30909	
MA(5)	-0.058860	-0.945735	
MA(6)	-0.047184	-0.818630	
MA(7)	-0.272432***	-4.353381	
MA(8)	0.831278***	15.07172	
Variance Equation			
α_0	-0.105169***	-3.352271	
α_1	0.147751***	3.595154	
γ	-0.029068	-1.540950	
B	0.958012***	45.18644	
Π	-1.25E-08*	-1.682727	
R ²	0.068422	Akaike info criterion	2.770083
Adjusted R ²	0.040192	Schwarz criterion	2.943330
Durbin-Watson stat	1.920698	Hannan-Quinn criter.	2.837631

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

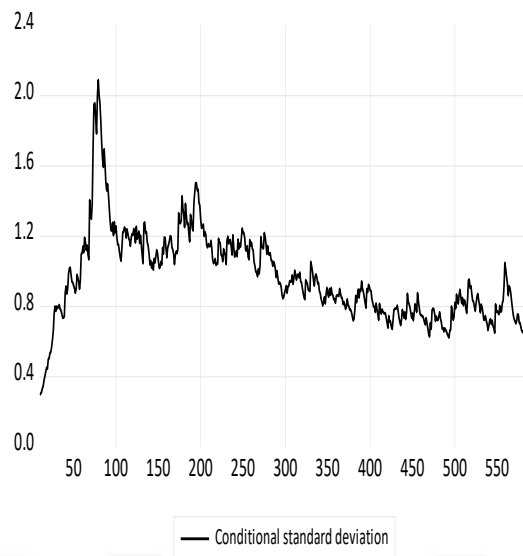


Figure 23. Conditional Standard Deviation of FTFBMHS Index

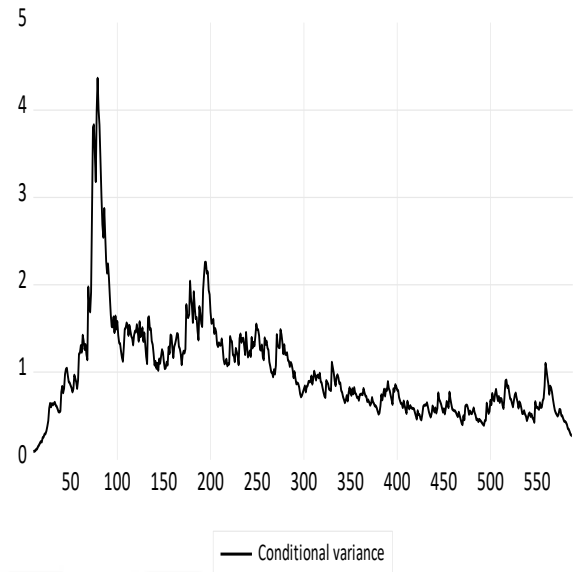


Figure 24. Variance of FTFBMHS Index

The model to use with the mean equation was selected using Schwarz's information criterion, as shown in Table 13 for the index FTFBMS. The ARIMA (5, 0, 5) model's error terms were used to construct the variance equation. It is advantageous that the long-term volatility of the conditional variance ($\beta = 0.949376$) is minimal. Similarly, the EGARCH model adequately describes the asymmetrical effects ($\gamma \neq 0$) it is crucial for the study's goals that the coefficient indicating the impact of COVID-19 on conditional variance, also known as volatility, is negative ($-1.66\text{E-}08$) at the 5% level of significance.

Table 13. EGARCH-X Model Results for FTFBMS Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	-0.019383	-0.565399	
AR(1)	-0.227123	-1.286412	
AR(2)	-0.171444	-1.418371	
AR(3)	0.134072	0.964822	
AR(4)	-0.354336****	-3.028378	
AR(5)	-0.689708****	-4.435927	
MA(1)	0.188939	0.984629	
MA(2)	0.231516*	1.892104	
MA(3)	-0.153573	-1.083967	
MA(4)	0.459522***	3.810772	
MA(5)	0.666244***	3.669169	
Variance Equation			
α_0	-0.158829****	-4.302128	
α_1	0.203829****	4.574195	
γ	-0.041104*	-1.834452	
B	0.949376****	41.32799	
Π	-1.66E-08**	-2.012423	
R ²	0.020744	Akaike info criterion	2.515626
Adjusted R ²	0.003624	Schwarz criterion	2.635508
Durbin-Watson stat	1.997804	Hannan-Quinn criter.	2.562354

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

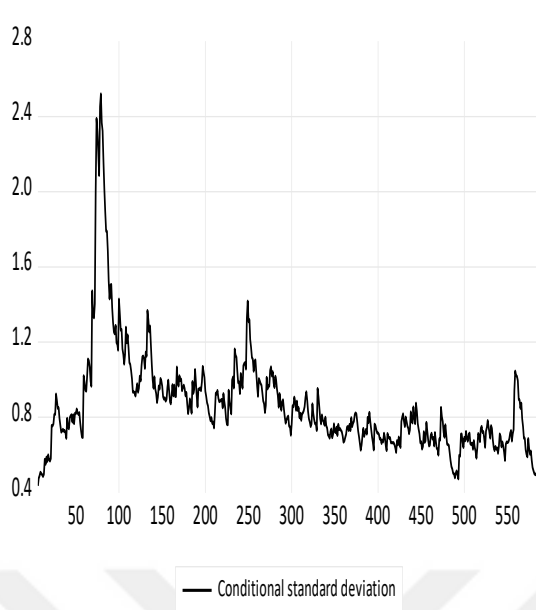


Figure 25. Conditional Standard Deviation of FTFBMS Index

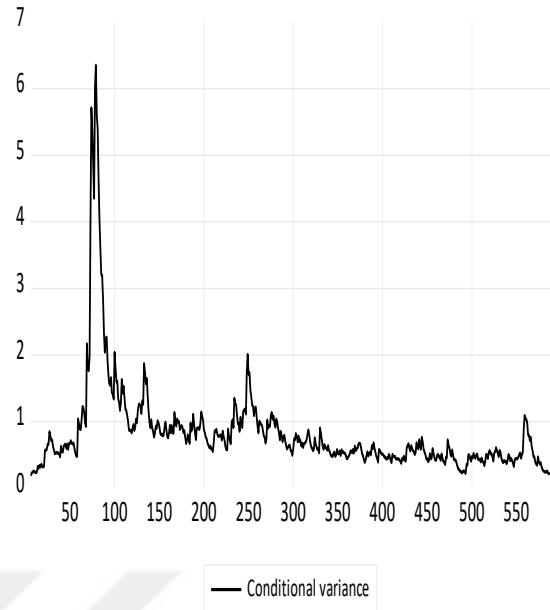


Figure 26. variance of FTFBMS Index

Schwarz's information criterion was used to choose the model to utilize with the mean equation, as can be seen in Table 14 for the index KLSE. The variance equation was built using the error terms from the ARIMA (10, 0, 10) model. It is favorable that the conditional variance's low long-term volatility ($\beta = 0.945501$) is present. For the purposes of the study, it is critical that the coefficient reflecting the influence of COVID-19 on conditional variance, also known as volatility, is negative ($-1.65\text{E-}08$) at the 1% level of significance. Similarly, the EGARCH model adequately reflects the asymmetrical effects ($\gamma \neq 0$).

Table 14. EGARCH-X Model Results for KLSE Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	-0.018576	-0.545256	
AR(1)	-0.198590	-0.328984	
AR(2)	0.145747	0.598033	
AR(3)	0.443861***	3.646001	
AR(4)	0.146870	0.500542	
AR(5)	0.184791	1.210839	
AR(6)	0.067292	0.339593	
AR(7)	0.180370	1.516232	
AR(8)	0.139395	0.844972	
AR(9)	-0.694630***	-6.459101	
AR(10)	-0.405595	-0.920091	
MA(1)	0.152773	0.255100	
MA(2)	-0.098300	-0.357491	
MA(3)	-0.460697***	-2.988209	
MA(4)	-0.065573	-0.200792	
MA(5)	-0.166551	-0.839694	
MA(6)	-0.031986	-0.143760	
MA(7)	-0.236441	-1.626291	
MA(8)	-0.161200	-0.779264	
MA(9)	0.707430***	5.681407	
MA(10)	0.431085	0.964402	
Variance Equation			
α_0	-0.171014***	-3.855490	
α_1	0.207788***	4.222230	
γ	-0.087984***	-3.273321	
B	0.945501***	35.67786	
Π	-1.65E-08*	-1.599906	
R ²	0.073419	Akaike info criterion	2.412248
Adjusted R ²	0.040148	Schwarz criterion	2.608353
Durbin-Watson stat	1.932691	Hannan-Quinn criter.	2.488715

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

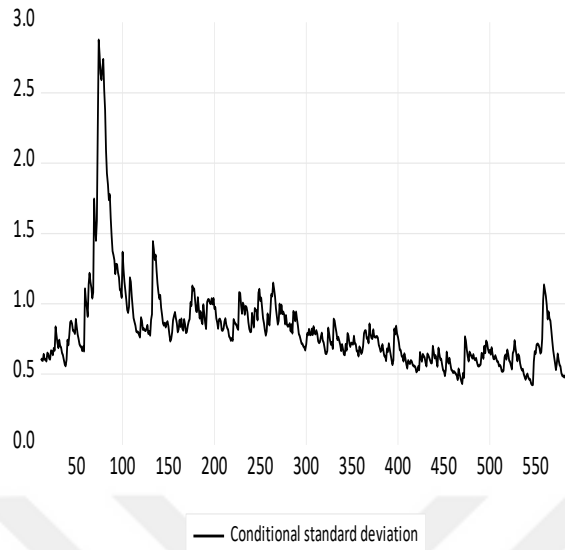


Figure 27. Conditional Standard Deviation of KLSE Index

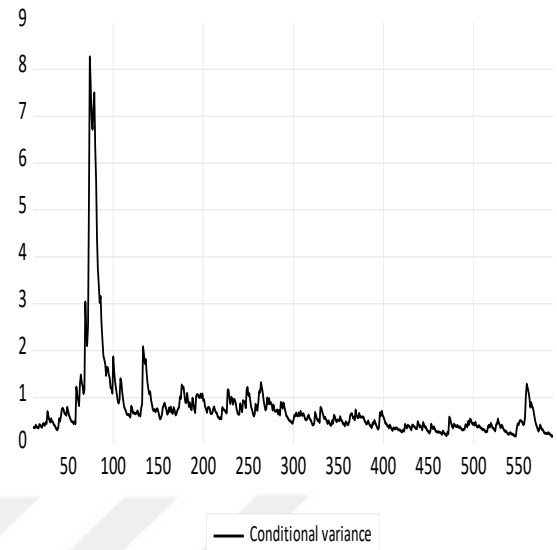


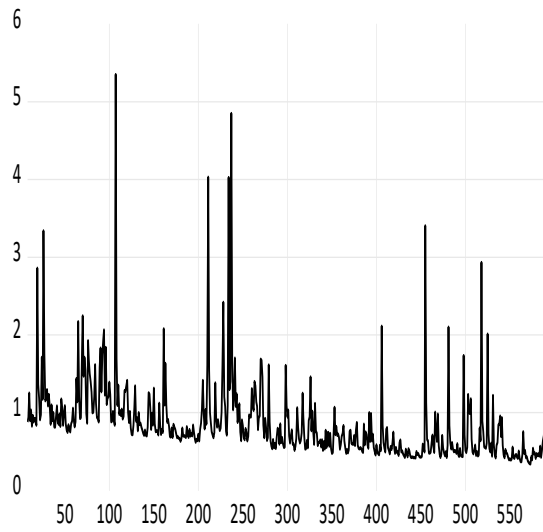
Figure 28. Variance of KLSE Index

As shown in Table 15 for the index NGSE30, the model to employ with the mean equation was chosen using Schwarz's information criterion. The error terms from the ARIMA (7, 0, 9) model were used to construct the variance equation. The low long-term volatility of the conditional variance ($\beta = 0.414588$) is advantageous. The coefficient representing the impact of COVID-19 on conditional variance, often known as volatility, must be negative ($-3.29\text{E-}06$) at the 1% level of significance for the study to be valid. The asymmetrical effects ($\gamma \neq 0$) are similarly well reflected by the EGARCH model.

Table 15. EGARCH-X Model Results for NGSE30 Index

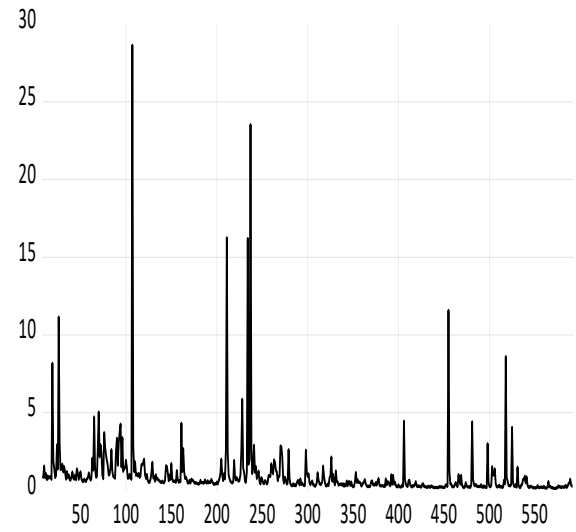
Variable	Coefficient		z-Statistic
Mean Equation			
Constant	-0.042524		-0.827596
AR(1)	0.096060		0.146839
AR(2)	-0.154775		-0.355994
AR(3)	-0.128437		-0.375964
AR(4)	0.370792		0.959804
AR(5)	0.241451		0.601727
AR(6)	0.350312		0.845899
AR(7)	-0.187567		-0.515255
MA(1)	0.128299		0.197640
MA(2)	0.217171		0.483058
MA(3)	0.199147		0.595929
MA(4)	-0.291404		-0.785070
MA(5)	-0.297386		-0.913919
MA(6)	-0.416988		-1.044816
MA(7)	0.145737		0.407413
MA(8)	0.027486		0.278428
MA(9)	0.066353		1.555004
Variance Equation			
α_0	-0.445023***		-5.318313
α_1	0.747392***		10.16061
γ	0.188069***		3.625667
B	0.414588***		4.816823
Π	-3.29E-06***		-4.967580
R ²	0.095157	Akaike info criterion	2.375913
Adjusted R ²	0.069668	Schwarz criterion	2.540315
Durbin-Watson stat	1.988436	Hannan-Quinn criter.	2.439984

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.



— Conditional standard deviation

Figure 29. Conditional Standard Deviation of NGSE30 Index



— Conditional variance

Table 30. Variance of NGSE30 Index

Schwarz's information criterion was used to select the model to use with the mean equation, as indicated in Table 16 for the index NGSEINDEX. The variance equation was built using the ARIMA (9, 0, 5) model's error terms. It is favorable that the conditional variance has a low long-term volatility ($\beta = 0.821182$). For the study to be considered legitimate, the coefficient indicating the effect of COVID-19 on conditional variance, sometimes referred to as volatility, must be negative ($-6.78E-07$) at the 1% level of significance. The EGARCH model similarly captures the asymmetrical effects ($\gamma \neq 0$).

Table 16. EGARCH-X Model Results for NGSEINDEX Index

Variable	Coefficient	z-Statistic	
Mean Equation			
<i>Constant</i>	0.071910	1.432221	
<i>AR(1)</i>	0.133149	0.171301	
<i>AR(2)</i>	0.039576	0.098399	
<i>AR(3)</i>	0.299828	1.016412	
<i>AR(4)</i>	-0.623376	-1.581728	
<i>AR(5)</i>	0.292407	0.602767	
<i>AR(6)</i>	0.012092	0.094410	
<i>AR(7)</i>	0.006709	0.095423	
<i>AR(8)</i>	0.021271	0.345090	
<i>AR(9)</i>	0.051767	0.952521	
<i>MA(1)</i>	0.075756	0.096520	
<i>MA(2)</i>	0.012316	0.028013	
<i>MA(3)</i>	-0.312212	-0.900947	
<i>MA(4)</i>	0.641188	1.493244	
<i>MA(5)</i>	-0.092469	-0.184890	
Variance Equation			
α_0	-0.315914***	-7.006150	
α_1	0.423185***	8.595708	
γ	0.090884***	3.005153	
B	0.821182***	25.76668	
Π	-6.78E-07***	-2.745497	
R ²	0.102688	Akaike info criterion	2.280920
Adjusted R ²	0.080572	Schwarz criterion	2.430772
Durbin-Watson stat	1.897194	Hannan-Quinn criter.	2.339329

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

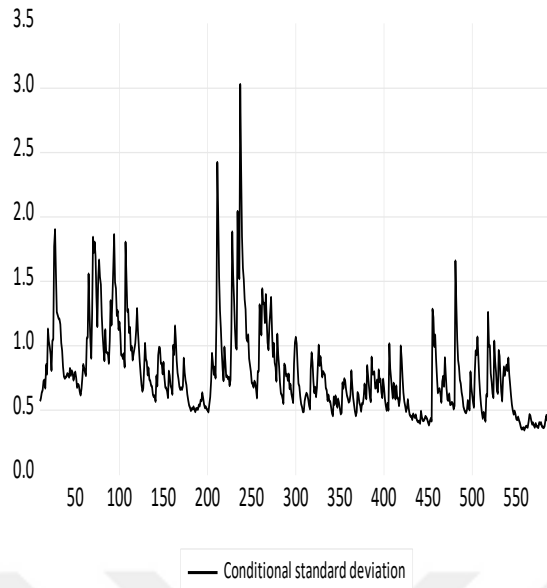


Figure 31. Conditional Standard Deviation of NGSEINDEX Index

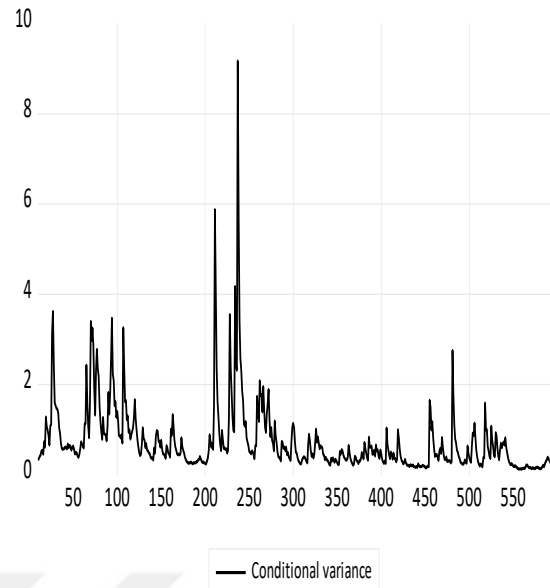


Figure 32. variance of NGSEINDEX Index

As shown in Table 17 for the index NGSELOTUS, the model to employ with the mean equation was chosen using Schwarz's information criterion. The error terms of the ARIMA (9, 0, 5) model were used to construct the variance equation. It is advantageous that the conditional variance ($\beta = 0.496643$) has a low long-term volatility. The coefficient reflecting the effect of COVID-19 on conditional variance, often known as volatility, must be negative ($-1.82E-06$) at the 1% level of significance for the study to be deemed valid. The asymmetrical effects ($\gamma \neq 0$) are also captured by the EGARCH model.

Table 17. EGARCH-X Model Results for NGSELOTUS Index

Variable	Coefficient	z-Statistic	
Mean Equation			
<i>Constant</i>	0.059852		1.364146
<i>AR(1)</i>	-0.819748**		-2.048393
<i>AR(2)</i>	-0.563171		-0.924193
<i>AR(3)</i>	-0.114895		-0.203262
<i>AR(4)</i>	-0.016570		-0.050052
<i>AR(5)</i>	-0.421826**		-2.414939
<i>MA(1)</i>	1.036145**		2.513885
<i>MA(2)</i>	0.760756		1.070246
<i>MA(3)</i>	0.256253		0.360777
<i>MA(4)</i>	0.050882		0.116150
<i>MA(5)</i>	0.383723**		1.982212
Variance Equation			
α_0	-0.231234***		-4.177092
α_1	0.509877***		7.487447
γ	0.166690***		3.054018
B	0.496643***		6.598915
Π	-1.82E-06***		-4.086065
R ²	0.056147	Akaike info criterion	2.656399
Adjusted R ²	0.039760	Schwarz criterion	2.775650
Durbin-Watson stat	2.008520	Hannan-Quinn criter.	2.702867

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

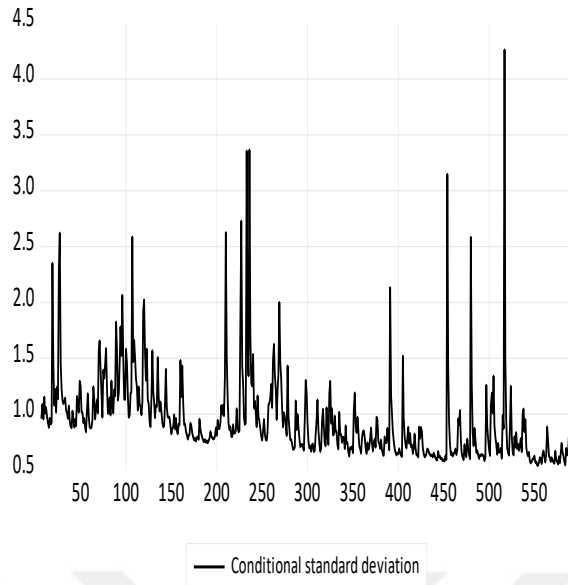


Figure 33. Conditional Standard Deviation of NGSELOTUS Index

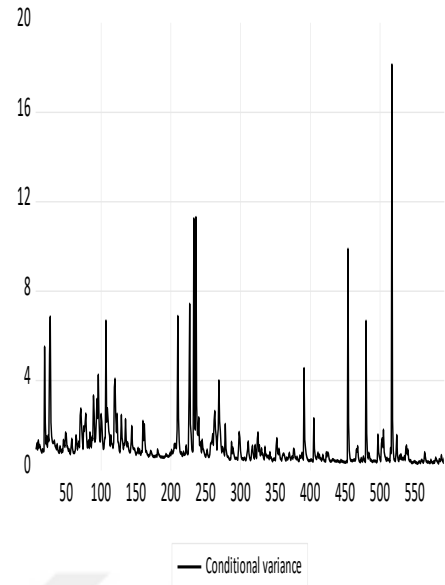


Figure 34. Variance of NGSELOTUS Index

The model to use with the mean equation was selected using Schwarz's information criterion, as shown in Table 18 for the index QS. The ARIMA (6, 0, 6) model's error terms were used to construct the variance equation. It is advantageous that the long-term volatility of the conditional variance ($\beta = 0.971319$) is minimal. Similarly, the EGARCH model adequately describes the asymmetrical effects ($\gamma \neq 0$) it is crucial for the study's goals that the coefficient indicating the impact of COVID-19 on conditional variance, also known as volatility, is positive ($1.13\text{E-}07$) at the 5% level of significance and it is just the index which is positive among all others.

Table 18. EGARCH-X Model Results for QSI Index

Variable	Coefficient	z-Statistic
Mean Equation		
<i>Constant</i>	0.063036*	1.797547
<i>AR(1)</i>	-0.078976	-0.083685
<i>AR(2)</i>	-0.067545	-0.077912
<i>AR(3)</i>	0.476627	0.713901
<i>AR(4)</i>	-0.238175	-0.295305
<i>AR(5)</i>	-0.621192	-0.697693
<i>AR(6)</i>	-0.161212	-0.294030

Table 18. (Continue)

$MA(1)$	0.136327	0.144680	
$MA(2)$	0.133307	0.159634	
$MA(3)$	-0.397880	-0.594963	
$MA(4)$	0.285182	0.375915	
$MA(5)$	0.632772	0.729738	
$MA(6)$	0.200042	0.368764	
Variance Equation			
α_0	-0.229527***	-5.454055	
α_1	0.262795***	6.234832	
γ	-0.101947***	-4.992280	
B	0.971319***	73.81809	
Π	1.13E-07*	1.700392	
R^2	0.017180	Akaike info criterion	2.238736
Adjusted R^2	-0.003225	Schwarz criterion	2.372193
Durbin-Watson stat	1.998199	Hannan-Quinn criter.	2.290723

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

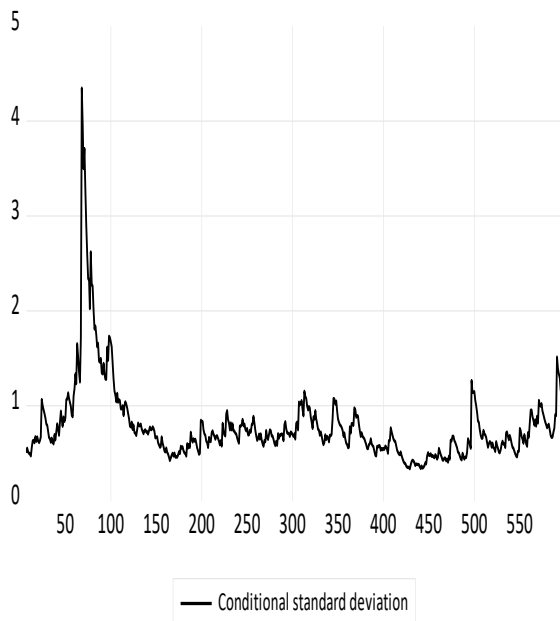
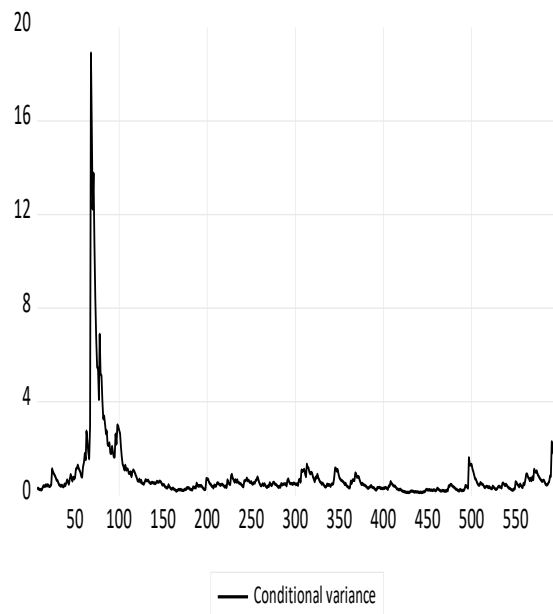
**Figure 35.** Conditional Standard Deviation of QSI Index**Figure 36.** Variance of QSI Index

Table 19. The Conclusion of EGARCH Model

COUNTRY (INDEX)	EGARCH	PROB	SIGNIFICANT
INDONESIA			
JAKARTA ISLAMIC (JKII)	-0.0000000139	0.0117	**
JAKARTA STOCK EXCHANGE COMPOSITE INDEX (JKSE)	-0.0000000225	0.0022	**
JAKARTA ISLAMIC 70 (JKII70)	-0.0000000124	0.0365	***
MALAYSIA			
FTSE BURSA MALAYSIA HIJRAH SHARIAH (FTFBMHS)	-0.0000000125	0.0924	*
FTSE BURSA MALAYSIA EMAS SHARIAH (FTFBMS)	-0.0000000166	0.0442	**
FTSE MALAYSIA KLCI (KLSE)	-0.0000000165	0.1096	*
NIGERIA			
NSE 30 (NGSE30)	-0.00000329	0	***
NSE ALL SHARE (NGSEINDEX)	-0.000000678	0.006	***
NSE LOTUS ISLAMIC (NGSELOTUS)	-0.00000182	0	***
PAKISTAN			
ALL SHARES ISLAMIC INDEX OF PAKISTAN (KMIAS)	0.00E+00	1	
KARACHI 100 (KSE)	0.00E+00	1	
QATAR			
QE AL RAYAN ISLAMIC (QERI)	-0.00000014	0.1418	
QE GENERAL (QSI)	0.000000113	0.0891	*

Table 19. (Continue)

USA			
DOW JONES ISLAMIC MARKET INTERNATIONAL TITANS 100 (DJI100X)	0.00E+00	1	
NASDAQ 100 (NDX)	0.00E+00	1	
S&P 500 (SPX)	0.00E+00	1	

After running the test for all indexes, we can say that the result statistically significant at 10%, 5% and 1% respectively for some of the indexes, however it was not significant for indexes in a country like, US, Pakistan, and one of the indexes in Qatar as it is shown in the table 18. The test shows us the uncertainty and volatility of each indexes. Moreover, all the result was negative except the QSI index which was positive. We can see that the most affected index in Indonesia was not one of the Islamic indexes as JKII was affected by (-0.0000000139) also the JKII70 index was affected by (-0.0000000124)

which lower than JKSE index by (-0.0000000225) which represent the Convectional index. In addition to that, that was the case in Malaysia as the Islamic index FTFBMHS was the least affected one by (-0.0000000125) on the other hand one of the Islamic indexes and the representative of conventional index were affected almost the same, FTFBMS index by (-0.0000000166) and the index KLSE by (-0.0000000165). Nevertheless, that was not the case in Nigeria as it was one of the conational indexes affected less than the other two one of the was the Islamic one and the index NGSEINDEX (-0.000000678) and NGSELOTUS index which represent the Islamic one was less affected than NGSE30 which was affected by (-0.00000329). last but not least the uncertainty of QSI which the index in Qatar was (0.000000113) it was positive one which was just the one like this among others. By overall looking we can that Nigerian indexes were affected the most among others which include the Islamic and the conventional, moreover the least affected by the uncertainty was in Indonesia and Malaysia and the Islamic indexes in general were better. And maybe because of the Shariah standers of the Islamic indexes which in general agree with some points such as the cash on deposit in interest-bearing securities may not exceed thirty percent (30%) of the market value of the whole equity of the Company. Also, the usurious debt must not exceed 30% of the market value of the company. the total market value of illiquid assets must not exceed 30% of the total market value of assets which make the advantage among others.

The result was in the same side with what Welling (2020) found. As it was stated in the research that despite negative market action in the first quarter of 2020, S&P and Dow Jones claimed that their Islamic indexes excelled their conventional rivals. And similar what we found, Ashraf et al (2022), Shear and Ashraf (2022), Hassan Et al (2022), Nomran and Haron (2021) Adekoya et al (2022) Salisu and Shaik (2022) Rehman et al (2021) Wijana Et al (2022) and Mirzai et al (2022) They discovered that Islamic shares (equity) investments demonstrate considerable excess returns in nominal and risk-adjusted terms over the Coronavirus time. They also found evidence that the firms which adhering to the market value of equity (MVE) approach for Shariah screening, do offer resistance or hedging during extreme market declines.

Interestingly Sherif (2020) found that the disease has a negative but negligible interaction with the Dow Jones which faith-based ethical in other word Islamic index.

Also, Saleem et al (2021) found that COVID-19 the Islamic financial stock index in Australia and the Islamic financial market index which located in the GCC were stable in the short term which can support our findings.

By using the DCC-GARCH, Erdoğan Et al (2020). found that Islamic financial stock markets are more resilient to the shock of the world Coronavirus outbreak in Turkey. In contrast of that Aloui et al (2022), The findings from multivariate GJR-GARCH models offered that while the recovered cases do not have a significant impact on mean DCCs across Islamic and conventional financial stocks, Coronavirus infected cases and fatalities do. In addition to that Hasan et al (2021) found that Islamic and conventional market are strongly connected and have a strong propensity to move together in the time of COVID-19. Also, Chidami (2015) and Cheong (2020) found that the Islamic index in Malaysia and Indonesia was more volatile, unlike the rest of the indices. This was attributed to the laxity of examination standards in both countries.

CONCLUSION

The Covid-19 pandemic, which initially surfaced in January 2020, has had a significant negative influence on the financial sector globally. Of course, one the sectors were affected Islamic stock markets. The Islamic financial services market is witnessing rapid growth and increasing interest in all countries, especially after the mortgage financial crisis, which highlighted the importance of ethical and social investments as more system-enhancing means.

In some time ago, devout young Muslims asked if trading these shares was acceptable. So, after the question from many Muslim and non-Muslim to have trading which passed on ethics. The first Islamic stock index was launched in Malaysia in 1999, the same year the Dow Jones Islamic Index was established, in order to identify businesses that adhere to Shariah. This development has aided in expanding the potential for asset managers to produce new products and for investors wishing to invest according to Islamic principles.

Islamic financing first appeared 50 years ago in nations with sizable Muslim populations that wanted to make sure their financial sources complied with Shariah law and Islamic tenets. The business experienced its biggest recorded increase since the global financial crisis in 2009 with assets in the Islamic finance sector totalling US\$2.88 trillion. The future is bright: this is anticipated to increase to US\$3.69 trillion by 2024. Along with the fact that Muslim nations have turned to Shariah financing to quench their thirst for capital, another factor contributing to its popularity is the fact that Shariah financing is starting to gain traction with non-Muslim countries as well.

The Islamic finance industry is imposing itself on the ground. It has achieved a great presence on the global economic arena. Due to the advantages enjoyed by this industry and its reliance on Islamic Sharia provisions and standards.

One of this successful industry is the creation of Islamic indexes. which restrict the investor in determining the directions of his investment towards halal. As a result of this, several Islamic indexes have appeared in many Islamic and even international countries, and they are still under study in other countries of the world.

The objectives of this research are to study Islamic stock indexes during the time of Covid-19 extensively and compare it with conventional stock indexes. Our research aims to analyse how stock returns indexes of Islamic and conventional have been affected by COVID-19. So, in other word, the research objected to analyse the effect of COVID-19 on the returns and volatility of Islamic and conventional stocks indexes by using ARIMA-X and EGARCH-X models. In keeping with this objective, the Islamic and conventional stocks indexes were used to estimate the financial stock return, and the dummy variable as of number of everyday cases of each country was used to estimate the effect of COVID-19.

The study examined the uncertainty and volatility of both Islamic and conventional stock indexes before, during the Covid-19 crisis. In addition to comparing Islamic stock market with others and the impact of this pandemic on them. Is Islamic finance and banking the solution instead of the traditional system in such circumstances? As they said in some paper that The Islamic financial system is a safe haven during crises

We found that the result was statistically significant at 10%, 5% and 1% respectively for some of the indexes, however it was not significant for indexes in a country like, US, Pakistan, and one of the indexes in Qatar.

By overall looking we can that Nigerian indexes were affected the most among others which include the Islamic and the conventional, moreover the least affected by the uncertainty was in Indonesia and Malaysia and the Islamic indexes in general were better. And maybe because of the Shariah standers of the Islamic indexes which in general agree with some points such as the cash on deposit in interest-bearing securities may not exceed thirty percent (30%) of the market value of the whole equity of the Company. Also, the usurious debt must not exceed 30% of the market value of the company. the total market value of illiquid assets must not exceed 30% of the total market value of assets which make the advantage among others.

We can conclude that Islamic stock indexes were affected like others by the COVID-19, even thought it was better in some countries and that might be because of the general condition of the country itself or maybe because of the standers some indexes have more than others.

Although we believe that this research filling the academic gap and was helpful for the investors both of them Muslim and non-Muslim, however much search should be done in future for this area it is worth it to be study such as sectoral area for example Islamic and conventional banks or insurance companies like Takaful compare it with the conventional insurance companies.

The limitation of this research was that there was no data at the beginning of COVID-19 and the COVID-19 did not finish yet that is why prediction of the future was hard. Also, the data for some countries were not equal as the opening of the stock indexes were not the same for all country such as the bank holidays, so the observations numbers were varied from one country to another one. Even though in some country two indexes were not the same with each other.

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APPENDIX

Table 20. EGARCH-X Model Results for KMIAS Index

Variable	Coefficient		z-Statistic
Mean Equation			
<i>Constant</i>	0.037441		0.577910
<i>AR(1)</i>	0.005000		0.000404
<i>AR(2)</i>	0.005000		0.000507
<i>AR(3)</i>	0.005000		0.000858
<i>AR(4)</i>	0.005000		0.001881
<i>AR(5)</i>	0.005000		0.002562
<i>AR(6)</i>	0.005000		0.002627
<i>AR(7)</i>	0.005000		0.005390
<i>MA(1)</i>	0.005000		0.000404
<i>MA(2)</i>	0.005000		0.000509
<i>MA(3)</i>	0.005000		0.000872
<i>MA(4)</i>	0.005000		0.001933
<i>MA(5)</i>	0.005000		0.002609
<i>MA(6)</i>	0.005000		0.002618
<i>MA(7)</i>	0.005000		0.005248
<i>MA(8)</i>	0.005000		0.051679
<i>MA(9)</i>	0.005000		0.078632
Variance Equation			
α_0	0.461176		0.389219
α_1	0.010000		0.167921
Γ	0.010000		0.282572
B	0.010000		0.003995
Π	0.000000		0.000000
R ²	0.004073	Akaike info criterion	3.367041
Adjusted R ²	-0.023737	Schwarz criterion	3.530367
Durbin-Watson stat	1.820673	Hannan-Quinn criter.	3.430668

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

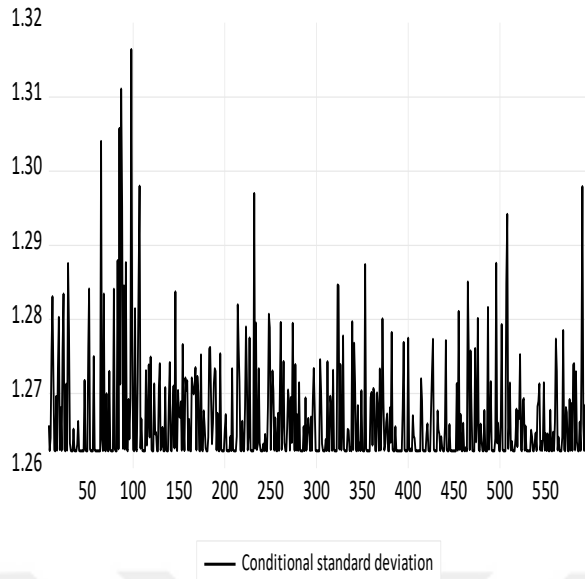


Figure 37. Conditional Standard Deviation of KMIAS Index

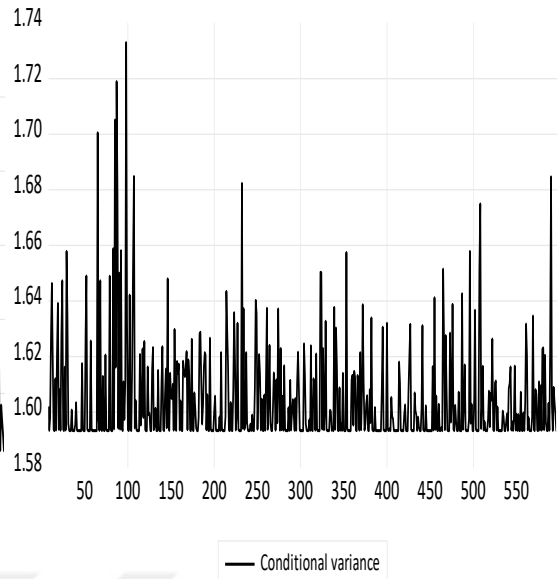


Figure 38. Variance of KMIAS Index

Table 21. EGARCH-X Model Results for KSE Index

Variable	Coefficient	z-Statistic
Mean Equation		
<i>Constant</i>	0.026286	0.375223
<i>AR(1)</i>	0.005000	0.001211
<i>AR(2)</i>	0.005000	0.001001
<i>AR(3)</i>	0.005000	0.001456
<i>AR(4)</i>	0.005000	0.003267
<i>AR(5)</i>	0.005000	0.002018
<i>AR(6)</i>	0.005000	0.002449
<i>AR(7)</i>	0.005000	0.002502
<i>AR(8)</i>	0.005000	0.006338
<i>AR(9)</i>	0.005000	0.002981
<i>AR(10)</i>	0.005000	0.003294
<i>MA(1)</i>	0.005000	0.001212
<i>MA(2)</i>	0.005000	0.001010
<i>MA(3)</i>	0.005000	0.001459
<i>MA(4)</i>	0.005000	0.003302

Table 21. (Continue)

<i>MA(5)</i>	0.005000	0.002024	
<i>MA(6)</i>	0.005000	0.002483	
<i>MA(7)</i>	0.005000	0.002510	
<i>MA(8)</i>	0.005000	0.006496	
<i>MA(9)</i>	0.005000	0.002992	
<i>MA(10)</i>	0.005000	0.003376	
Variance Equation			
α_0	0.461176	0.389219	
α_1	0.419365	0.382367	
γ	0.010000	0.170353	
B	0.010000	0.268769	
Π	0.010000	0.003892	
R ²	0.003688	Akaike info criterion	3.340331
Adjusted R ²	-0.031517	Schwarz criterion	3.534114
Durbin-Watson stat	1.815740	Hannan-Quinn criter.	3.415841

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

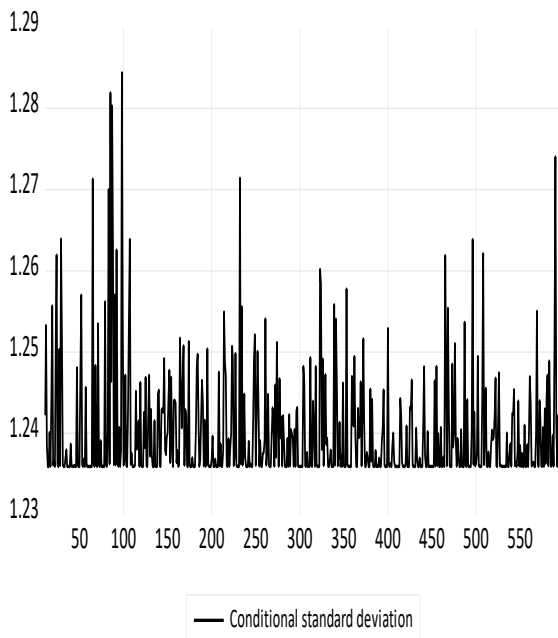
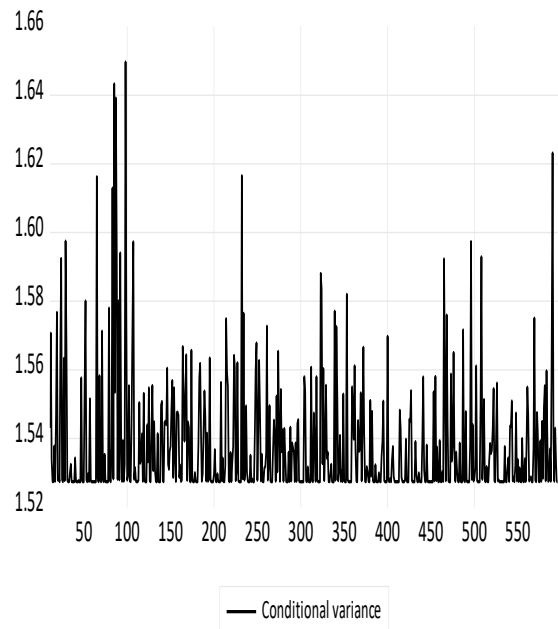
**Figure 39.** Conditional Standard Deviation of KSE Index**Figure 40.** Variance of KSE Index

Table 22. EGARCH-X Model Results for QERI Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	0.038790	1.054502	
AR(1)	1.744708	36.12024	
AR(2)	-1.127996	-11.81101	
AR(3)	0.142573	1.352128	
AR(4)	-0.099438	-0.953747	
AR(5)	0.065427	0.725982	
AR(6)	-0.001306	-0.030139	
MA(1)	-1.642587	-409.1047	
MA(2)	0.990601	290.6025	
Variance Equation			
α_0	-0.193567	-5.508935	
α_1	0.243920	6.012577	
γ	-0.091528	-4.012456	
B	0.947369	46.31294	
Π	-1.40E-07	-1.469104	
R ²	0.030334	Akaike info criterion	2.188688
Adjusted R ²	0.017006	Schwarz criterion	2.292488
Durbin-Watson stat	1.998581	Hannan-Quinn criter.	2.229123

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; *B*; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

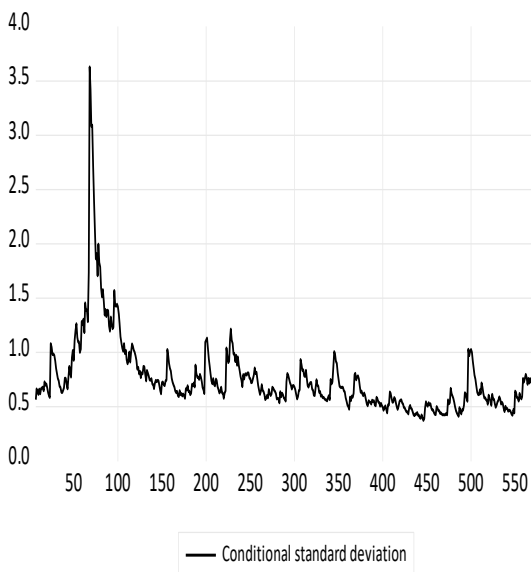
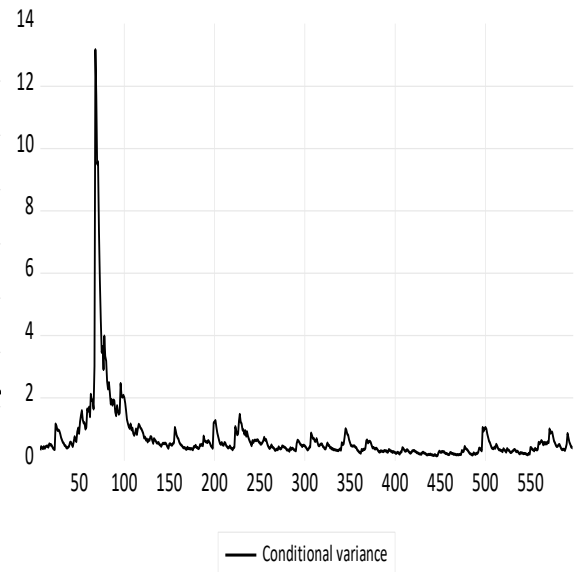
**Figure 41.** Conditional Standard Deviation of QERI Index**Figure 42.** variance of QERI Index

Table 23. EGARCH-X Model Results for DJI100X Index

Variable	Coefficient	z-Statistic	
Mean Equation			
Constant	0.027597	0.472969	
AR(1)	0.005000	0.000528	
AR(2)	0.005000	0.000419	
AR(3)	0.005000	0.000850	
AR(4)	0.005000	0.000903	
MA(1)	0.005000	0.000528	
MA(2)	0.005000	0.000422	
MA(3)	0.005000	0.000850	
MA(4)	0.005000	0.000917	
MA(5)	0.005000	0.080058	
MA(6)	0.005000	0.069297	
Variance Equation			
α_0	0.235961	0.238937	
α_1	0.010000	0.241442	
γ	0.010000	0.327001	
B	0.010000	0.002486	
Π	0.000000	0.000000	
R ²	0.002192	Akaike info criterion	3.122998
Adjusted R ²	-0.014192	Schwarz criterion	3.237314
Durbin-Watson stat	1.835410	Hannan-Quinn criter.	3.167433

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

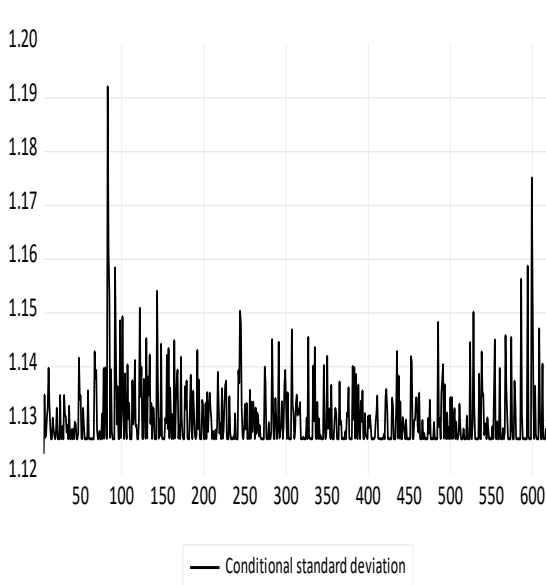
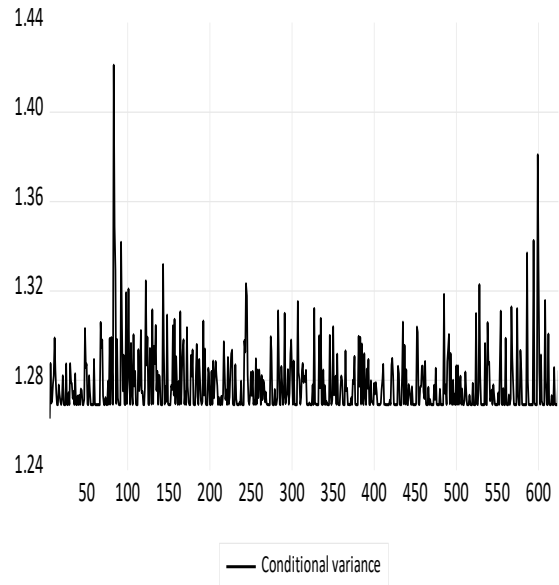
**Figure 43.** Conditional Standard Deviation of DJI100X Index**Figure 44.** Variance of DJI100X Index

Table 24. EGARCH-X Model Results for NDX index

Variable	Coefficient		z-Statistic
Mean Equation			
Constant	0.076197		0.718401
AR(1)	0.005000		0.000447
AR(2)	0.005000		0.000551
AR(3)	0.005000		0.000886
AR(4)	0.005000		0.000928
AR(5)	0.005000		0.000842
AR(6)	0.005000		0.001389
MA(1)	0.005000		0.000447
MA(2)	0.005000		0.000552
MA(3)	0.005000		0.000882
MA(4)	0.005000		0.000918
MA(5)	0.005000		0.000864
MA(6)	0.005000		0.001425
MA(7)	0.005000		0.044051
MA(8)	0.005000		0.053523
MA(9)	0.005000		0.062251
MA(10)	0.005000		0.086895
Variance Equation			
α_0	1.241342		1.178481
α_1	0.010000		0.392156
γ	0.010000		0.642557
B	0.010000		0.012049
Π	0.000000		0.000000
R ²	-0.004827	Akaike info criterion	4.147871
Adjusted R ²	-0.031578	Schwarz criterion	4.305448
Durbin-Watson stat	2.550444	Hannan-Quinn criter.	4.209131

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; B ; leverage effect, Π ; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

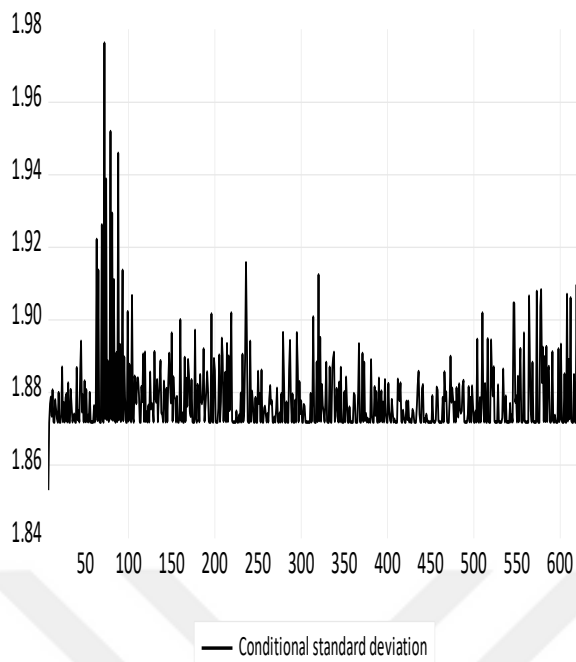


Figure 45. Conditional Standard Deviation of NDX Index

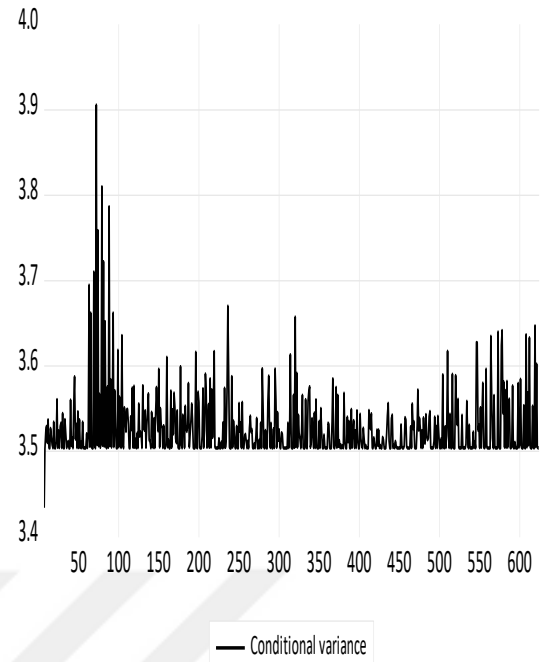


Figure 46. Variance of NDX Index

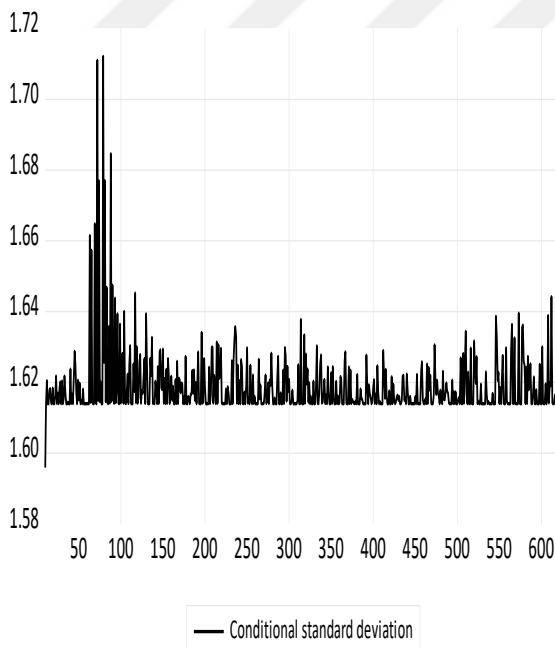
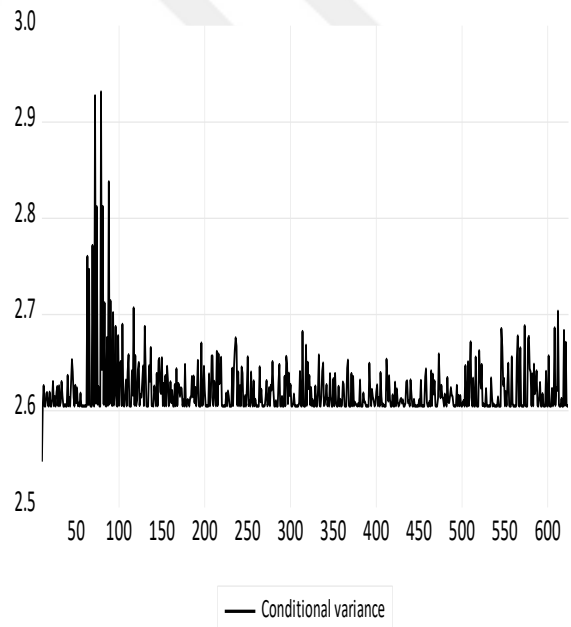
Table 25. EGARCH-X Model Results for SPX index

Variable	Coefficient	z-Statistic
Mean Equation		
<i>Constant</i>	0.049837	0.506408
<i>AR(1)</i>	0.005000	0.000326
<i>AR(2)</i>	0.005000	0.000413
<i>AR(3)</i>	0.005000	0.000351
<i>AR(4)</i>	0.005000	0.000409
<i>AR(5)</i>	0.005000	0.000808
<i>AR(6)</i>	0.005000	0.000877
<i>AR(7)</i>	0.005000	0.000492
<i>AR(8)</i>	0.005000	0.000764
<i>AR(9)</i>	0.005000	0.054443
<i>MA(1)</i>	0.005000	0.000326
<i>MA(2)</i>	0.005000	0.000417
<i>MA(3)</i>	0.005000	0.000352
<i>MA(4)</i>	0.005000	0.000413
<i>MA(5)</i>	0.005000	0.000813

Table 25. (Continue)

$MA(6)$	0.005000	0.000874	
$MA(7)$	0.005000	0.000496	
$MA(8)$	0.005000	0.000769	
Variance Equation			
α_0	0.947814	1.529004	
α_1	0.010000	0.414149	
γ	0.010000	0.665901	
B	0.010000	0.015707	
II	0.000000	0.000000	
R^2	-0.003156	Akaike info criterion	3.853031
Adjusted R^2	-0.031721	Schwarz criterion	4.018392
Durbin-Watson stat	2.566412	Hannan-Quinn criter.	3.917332

Note: signs and abbreviations presented in the table are explained as follows α_0 ; constant term for the mean equation; α_1 short term shock; γ beta long term; *B*; leverage effect, *II*; represents the external variable. In parenthesis are associative p-values. *, ** and *** are statistically significant at 10%, 5% and 1% respectively.

**Figure 47.** Conditional Standard Deviation of SPX Index**Figure 48.** variance of SPX Index

ÖZGEÇMİŞ

Kişisel Bilgiler	
Adı Soyadı	Almabrok F Ahmid
Doğum Yeri ve Tarihi	
Eğitim Durumu	
Lisans Öğrenimi	
Y. Lisans Öğrenimi	
Bildiği Yabancı Diller	
Bilimsel Faaliyetleri	
İş Deneyimi	
Stajlar	
Projeler	
Çalıştığı Kurumlar	
İletişim	
E-Posta Adresi	
Tarih	