

**The effect of the Russian – Ukrainian war on the prices'
volatility and liquidity of the Egyptian stock market: an event
study**

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Abstract:

This research examines the differential impact of Russia's present invasion of Ukraine on Egyptian stock market volatility and liquidity. The study utilises stock market data for the Egyptian stock market for 21 days before the Russian soldier build-up on Ukraine's borders in 2021, 21 days during the troop build, 21 days before the Russian invasion, and 21 days during the Russian assault. The paired t-test and line graphs were used to analyze the data.

According to the findings, the Egyptian stock market appears to have seen greater price volatility and lower liquidity because of the Ukraine war.

In these turbulent times, the findings provide investors with up-to-date stock market investing guidance to help them make risky investment decisions. It also provides an essential case for studying business and economics for students in higher education business institutions, as well as an agenda for future research.

Keywords: Egyptian stock market; prices; volatility; liquidity; Ukrainian war.

\.Introduction

Human history has always been filled with many crises such as economic, political, cultural, social. What all crises have in common is that once started, they generally lead to new ideas, and broader knowledge. As a result, during each crisis, opportunities for widening knowledge and experience that should be especially appealing to researchers emerge. As the name indicates, a crisis occurs when we see extraordinary occurrences. This means that it is conceivable to see events and conditions that have never occurred before, or that have never resulted in a situation as acute as a crisis.

Even though individuals should learn as much as they can from any catastrophe, the Ukrainian crisis has certain unique characteristics that make it especially noteworthy, as both Russia and Ukraine have a great percent in international trading in both food and energy markets.

The data from October 2009 indicated that markets worldwide exchanged securities worth \$14,910 trillion in that year, according to Lee, Clark, Pollard, and Leyshon (2009) who used data from that month. Simultaneously, the global GDP was predicted to reach \$5435 trillion. This implies that financial markets transacted up to 2.5 times as much as the actual economy generated during that time period. Several interpretations may be derived from these numbers: First and primarily, the financial industry is vital to the global economy. Second, this level of commerce would be difficult to reach without a significant degree of market integration.

Many academics agree that large financial markets are interconnected and that they impact small ones. The writers emphasize that the United States takes the lead in this case (Buttner, Hayo and Neuenkirch, 2010). Because the United

States has the world's largest economy, the world's financial markets are impacted by it in two ways: macroeconomic news from that nation and the status on US financial markets. Buttner et al. (2010) claim that financial markets are inextricably linked to releases of US macroeconomic news. Vrugt (2009) found the same results for Asia Pacific's financial markets. So this demonstrates that markets are dependent on the actual economy; after all, US macroeconomic data such as the unemployment rate, consumer and producer price indices, GDP, and the Balance of Trade reflect the situation in various industries. This includes not only finance but also manufacturing, services, and government. According to researchers (Vrugt, 2009), not only equities markets but also bond markets, foreign currency markets, and commodities markets are impacted, so we can conclude that it may be some effects on the stock market in Egypt.

Chatterjee & Masoni (2022) claims that Conflicts drive investors away from high-risk stock markets and drive them into safer investments like investment gold, bonds, and powerful currencies.

There are two main reactions from investor toward available news and public information, according to Barberis, Schleifer, and Vishny (1998). The first, underreaction, happens when investors take news slowly into account when valuing stocks. Furthermore, favorable news can be used to project future positive returns. When a security underreacts, it is also characterized by positive autocorrelation over the last 1-2 years. Underreaction is similar to conservatism in that it is characterized by a slow updating of models based on newly available information. Overreaction is the second way investors react. In this scenario, when a security encounters an extended trend of good

information about it (or negative- they have to point in one way), it tends to overvalue the weight of this news.

The financial market is inherently sensitive to rumors of instability, according to Chatterjee and Masoni (2022) when Russia build-up troops near Ukraine's borders, Russia sent shockwaves across global stock markets, As tensions rose, some investors started looking into markets for safe refuge investment opportunities, finally When the invasion occurred on February 24, 2022, it caused some anxiety among stock investors as well as volatility (with losses and profits) in worldwide financial markets.

Gas and oil prices jumped during the first week of the invasion. Oil prices have risen to \$100 per barrel, a historic high last reached in 2014. Similarly, gas prices in the United Kingdom and the Netherlands raised by 40%-50% owing to concerns about disruptions in oil and gas supply because of the Ukraine conflict (Wallace et al, 2022), with this all bad news the United Nations declared an unprecedented drop in global economic growth forecasts, citing reasons based on the Ukraine conflict (UNCTAD, 2022).

Although study on the stock market effect of wars is not as common as traditional economic and finance research subjects, some earlier studies investigated the influence of previous wars on stock markets. These include Hudson and Urquhart (2015) research about the effects on the British Stock Market form World War Two; the effect of war on stock market oil prices; and the impact of war on stock market inflation (Kollias, et al 2013). Other examples include the influence on the Portuguese stock market from the Spanish civil war (Leitao et al, 2013); discrepancies over the effect of foreign conflicts on financial markets (Brune et al, 2015); and the effect of war on the Brussels Stock Exchange (Verdictt, 2020), Jha et al (2022) examined how the

siege of Paris by the Prussian army in 1870 resulted in differentials in the bond market price of French sovereign bonds between Paris and other markets in their study on whether peace and war impact stock market movement.

There are two sorts of stocks or stock markets: those that gain from conflict and those that suffer as a result of war (Duggan, 2022). since it is politics that ignites the fuse of wars, stock market volatility during wartime takes on a variety of patterns, frightened investor into risk aversion in keeping or committing new investment. As a result, the few researches on war and the stock market depended on official news, rumors, and/or real war and conflicts.

Schneider and Troeger (2006) investigate the influence of political problems on global financial markets from 1990 to 2000. They used the rational expectation framework, which is a notion that links conflict and financial markets. Using daily stock market data, they discover that the conflict had a negative impact on the Western world's financial markets.

Using a news analysis method to predict the risk of a war because of a dispute Brune et al. (2015) discover that stock values fall at an early stage of the possibility of conflict. Furthermore, they believe that a sudden outbreak of conflict has the potential to lower stock values. However, rumours of finishing the war may boost the stock price as Investor optimistic. Brune et al. (2015) argue that such stock price movements based on risk aversion are hard to fully explain with precision. Another closely comparable study, In addition, Hudson and Urquhart (2015) investigated the influence of WWII on the British stock market. They used an event analysis to investigate the structural stock market breakdowns that occurred throughout the conflict. Overall, their findings provide weakly evidence of a link between war events and market

returns, but they do provide evidence for the war's negative impact on British stock markets (Hudson & Urquhart 2015).

Leitao et al. (2019) examined stock investors' reactions to news from the Spanish War using a monthly panel of stock returns from businesses listed on the Lisbon Stock Exchange. They use dynamic specs with a monthly and hard fixed effect setup, As control variables, they also utilized the London interest rate and happenings in Portugal. Their statistical findings suggest that the events of the Spanish Civil War had a detrimental impact on stock market returns.

Verdictt (2020) used a news-based conflict assessment technique, he found evidence that stock market investors and managers alike exhibit considerable risk aversion in the aftermath of war news, During the onset of war, management reduced dividend payouts and delayed initial public offerings (IPO). Furthermore, Verdictt (2020) discovered that multinational corporations based in conflict zones have a proclivity to delist from the stock market when war breaks out in their home country, and investors have a negative reaction to news and rumours of war published in the media. Furthermore, Verdictt (2020) revealed evidence of mean stock reversion and concurrent negative risk drift following the prospect of war.

Kollias et al. (2013) investigates the impact of war and terrorism on the covariance movement of oil prices and stock market prices. Concerning the effects of terrorism, they discover that it has an effect on the French and German stock market and oil price returns, but has no substantial effect on the American stock market.

Berkman and Jacobsen (2006) study is one of the most powerful studies that have been done, as they investigated 440 worldwide crises from 1918 to 2002, and their findings reveal that global crises reduce stock returns in global stock markets by around 4% every year. Further extensive study reveals that significant and negative stock market reactions occur mostly in the first month of the conflict, with below-average stock returns in the subsequent months of the war and some partial recovering impact towards the war's end. They demonstrate that foreign wars cause significant volatility in stock market returns. They also point out an important finding: stock market volatility is higher when big international powers engage in a conflict. This discovery is consistent with the ongoing Russian war in Ukraine, which witness of entering powers such as the EU, the United Kingdom, and the United States against Russia.

However, empirical research on the impact of war on the Egyptian stock markets is still lacking, especially the present Ukraine war.

۲. Description of Data and Sample

The purpose of the present study was to investigate whether the Russian-Ukrainian war affect the prices volatility and liquidity of the Egyptian stock market. For achieving this, the researchers developed an event analysis model that demonstrates:

- (a) the difference between prices before and after the war.
- (b) the difference between market liquidity before and after the war.

The event analysis model consisted from two layers:

The first layer: analyze the difference between prices and liquidity before and Russian troops build before the war by compering the prices and the liquidity from to periods:

- The first period: before Russian troops build-up.
- The first period: during Russian troops buildup.

The second layer: analyze the difference between prices and liquidity before and after the war by compering the prices and the liquidity from two periods:

- The first period: before Russian troops invaded.
- The second period: during the Russian troops invasion.

The sample consisted of 84 observations, Divided in to four sub-samples

First sample: consists of 21 days before Russian troops build-up dated from 02/09/2021 to 30/09/2021.

Second sample: consists of 21 days during Russian troops buildup dated from 03/10/2021 to 02/11/2021.

Third sample: consists of 21 days before Russian troops invaded dated from 26/12/2021 to 24/01/2022.

Fourth sample: consists of 21 days during the Russian troops invasion dated from 26/01/2022 to 24/02/2022.

2.1 stock market price volatility

To illustrate the difference happened in prices before and after the war, the researcher used EGX100 EWI index, to calculate the volatility of the prices of the index using standard deviation, and test these differences is significant or not.

3. Methodology

This research used two layers of analysis for both stock market and liquidity, to analysis the differences before the war, by compering two period, these two periods are the time before troops build up and during troops build up.

To analysis the differences after the war, by compering two period, these two periods are the time before invasion and during the invasion.

To estimate whether the differences occurred in both prices and liquidity are significant we use the paired T test

4. Results

4.1 price volatility Results

4.1.1 Before the war

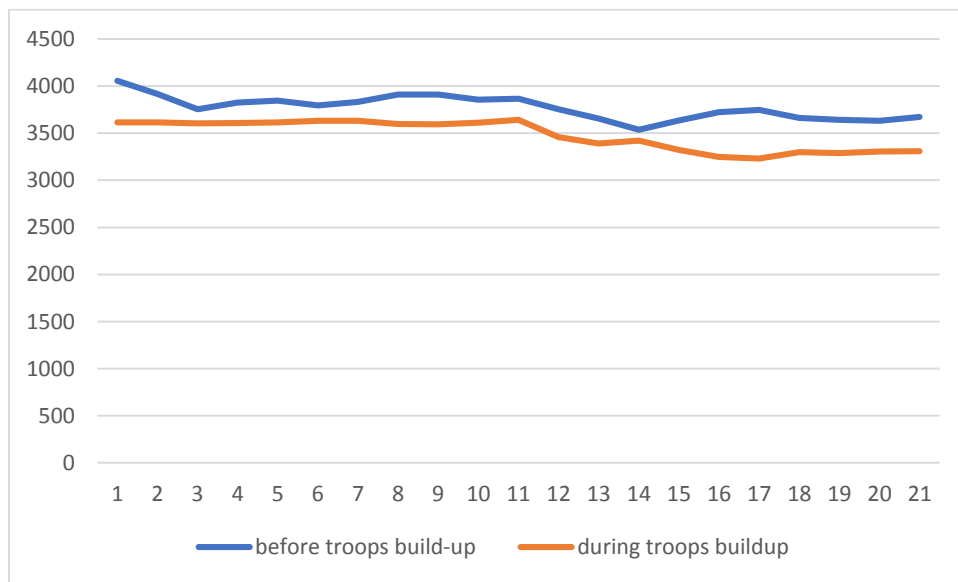


Figure 2. Egyptian market prices in the in before troops build up and during troops build up

As we can see from figure 1, the Egyptian market prices (EGX100 EWI) deteriorated, and the stock market volatility increased once the news declared Russian troops build up on the border of Ukraine.

Table 1. prices paired T test for the time before troops build up and during troops build up

	Mean	N	Std. Deviation
Pair 1 before troops build up	3772.71	21	126.515
during troops build up	3477.52	21	155.899
Sig.	.000 ***		

Note: ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

As we can see from table 1, the average prices in the Egyptian stock market decreased from 3772.71 to 3477.52, also the prices volatility increased as the standard deviation increased from 126.515 to 155.899, and these differences in the prices average and volatility is significant, which means that the market overreact to the news about Russian troops build up on the border of Ukraine.

4.1.2 After the war

As we can see from figure 2, the Egyptian market prices (EGX100 EWI) deteriorated, and the stock market volatility increased once the news declared about Russian invasion to Ukraine.

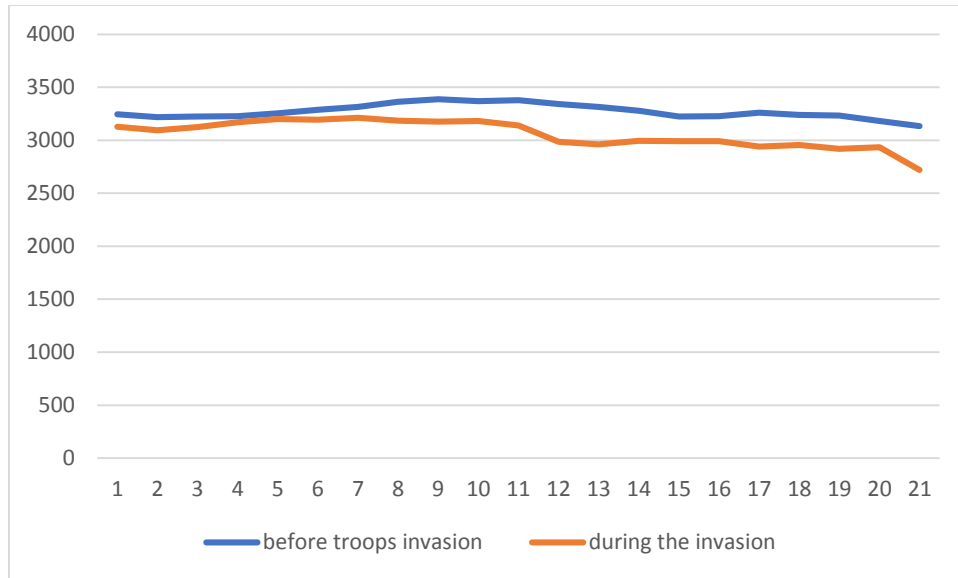


Figure 2. Egyptian market prices in the time before invasion and during the invasion

Table 2. prices paired T test for the time before invasion and during the invasion

		Mean	N	Std. Deviation
Pair 2	before invasion	3271.43	21	68.356
	during invasion	3057.33	21	129.726
Sig.		.000 ***		

Note: ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

As we can see from table 2, the average prices in the Egyptian stock market decreased from 3271.43 to 3057.33, also the prices volatility increased as the standard deviation increased from 68.356 to 129.726, and these differences in the prices average and volatility is significant, which means that the market overreact to the news about Russian invasion to Ukraine.

4.2 market liquidity

4.2.1 Before the war

As we can see from figure 3, the liquidity of the Egyptian market (market capital) did not affect by the news declared about Russian building up troops

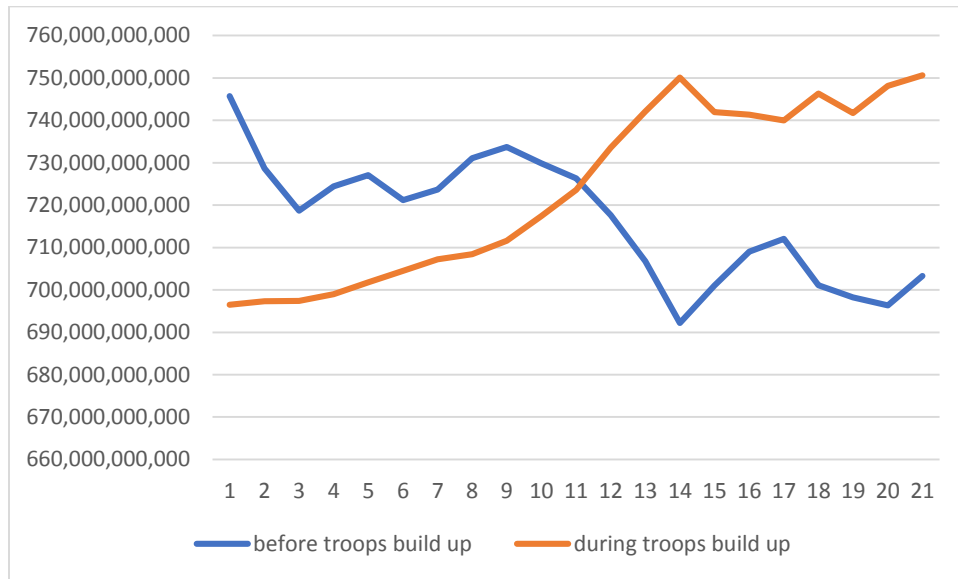


Figure 3. Egyptian market liquidity in the time before troops build up and during troops build up

Table 3. liquidity paired T test for the time before troops build up and during troops build up

	Mean	N	Std. Deviation
before troops build up	716574907506.57	21	14472838348.063
during troops build up	723845949435.00	21	20592352427.584

Sig.	.337 ***
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Note: ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

As we can see from table 3, the average liquidity of the Egyptian stock market increased from 716574907506.57 to 723845949435.00, also the liquidity volatility increased as the standard deviation increased from 14472838348.063 to 20592352427.584, and these differences in the prices average and volatility is not significant, so the increase in liquidity can be attributed to new IPOs Coinciding with this time such as e-finance.

4.2.2 after the war

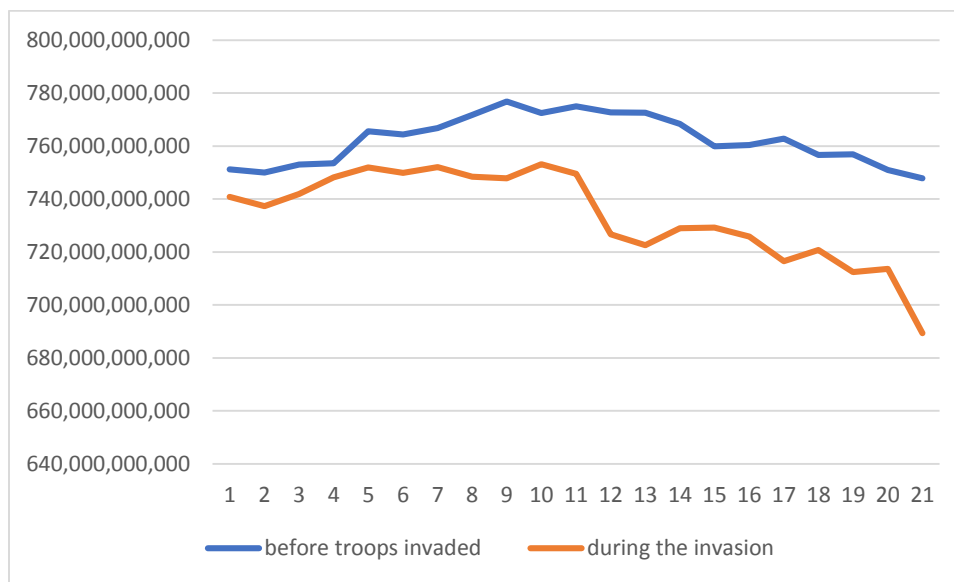


Figure 4. Egyptian market liquidity in the time before invasion and during the invasion

As we can see from figure 4, the liquidity of the Egyptian market (market capital) deteriorated once the news declared about Russian invasion to Ukraine.

As we can see from table 4, the average liquidity of the Egyptian stock market decreased from 762353288487.86 to 733656196179.86, also the liquidity

volatility increased as the standard deviation increased from 2013279412.847 to 3741127820.981, and these differences in the liquidity average and volatility is significant, which means that the market liquidity deteriorated due to the news about Russian invasion to Ukraine.

Table 4. liquidity paired T test for the time before invasion and during the invasion

	Mean	N	Std. Deviation
before invasion	762353288487.86	21	2013279412.847
Pair 2 during invasion	733656196179.86	21	3741127820.981
Sig.	.000 ***		

Note: ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

Conclusion

The Egyptian stock market appears to have seen increased price volatility and decreased in liquidity because of the Ukraine crisis. This is evident by the Egyptian stock market's high volatility standard deviation of 35789.75 for prices and 3741127820.981 for liquidity, The graphs in the article also show the impact of the conflict on Egyptian stock market prices and liquidity.

Because of market integration and overlaps amongst financial markets, this may lead to the preliminary conclusion that stock markets far from the precincts of the conflict may have a bigger volatility impact.

This basically implies that stock market investors' hopes for profit are not lost during the present crisis in Ukraine; volatility is unavoidable, but investors must be intelligent to know how to invest securely throughout current war.

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