



Jordan Investor Confidence Index (JICI)

Methodology 2019



منتدى الاستراتيجيات الأردني
JORDAN STRATEGY FORUM



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The Jordan Strategy Forum (JSF) is a not-for-profit organization, which represents a group of Jordanian private sector companies that are active in corporate and social responsibility (CSR) and in promoting Jordan's economic growth. JSF's members are active private sector institutions, who demonstrate a genuine will to be part of a dialogue on economic and social issues that concern Jordanian citizens. The Jordan Strategy Forum promotes a strong Jordanian private sector that is profitable, employs Jordanians, pays taxes and supports comprehensive economic growth in Jordan.

The JSF also offers a rare opportunity and space for the private sector to have evidence-based debate with the public sector and decision-makers with the aim to increase awareness, strengthening the future of the Jordanian economy and applying best practices.

For more information about the Jordan Strategy Forum, please visit our website at www.jsf.org or contact us via email at info@jsf.org. Please visit our Facebook page at [Facebook.com/JordanStrategyForumJSF](https://www.facebook.com/JordanStrategyForumJSF) or our Twitter account [@JSFJordan](https://twitter.com/JSFJordan) for continuous updates about Jordan Strategy Forum.

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1. Background

One of the main missions of the Jordan Strategy Forum is to engage stakeholders from the public and private sectors when necessary to ameliorate certain aspects of the Kingdom's economy. After several deliberations with both sectors since 2015, the Jordan Investor Confidence Index was constructed and streamlined to portray an apt image of the investor confidence patterns in Jordan. In essence, confidence is a sentiment that is sluggish and rigid. Therefore, JSF has scrutinized the publicly available data in a manner that takes trends and fluctuations into consideration.

Despite the fact that Jordan has a large database of publicly available statistics, it is worth noting that Jordan generally suffers from lags in data provision, as well as data to tell the full story of the economic and investment climates. This was translated in Jordan's rank in the Rule of Law Index, particularly in the "Publicized laws and Government Data" sub-indicator in which Jordan scored less than lower middle-income countries and the MENA region (WJP, 2019). Jordan's performance on World Bank's statistical capacity indicators have also declined in the last 3 years, as per JSF's report (JSF, 2019). Nevertheless, JSF continued to gather data and resorted to proxies that signify the main monetary, financial and economic indicators that have suffered from the aforementioned lags.

2. Structure of the Index

We state below the variables selected, which were collected on a monthly frequency from January 2007 to December 2018, segmented by three categories, along with the rationale behind the inclusion of each variable.

1. Monetary Indicators

- **Money Denominated in JDs:** This is the ratio of foreign currency deposits held in the Jordanian Economy to broad money. For the purposes of this index, we take the inverse ratio of (1-Dollarization Ratio) given that the higher that value is, the more percentage of money is being denominated in the Jordanian Dinar and not in foreign currencies thereby implying higher confidence in the local currency and thus the economy.
- **CBJ Gross Foreign Reserves:** This indicator is considered to be one of the most closely watched indicators that signal the health of the Jordanian economy and it measures the reserves of the Central Bank of Jordan denominated in foreign currency.
- **Interest Rate Differential:** This indicator is the difference between the Deposit Interest Rate of the Central Bank of Jordan and the corresponding Deposit rate adopted by the Federal Reserve Bank of the United States. This indicator serves to model the difference in monetary policy between Jordan and the United States given the currency peg currently adopted by the CBJ. A higher interest rate differential suggests a lower degree of confidence, as such a differential would increase the demand on the Jordanian Dinar; thereby strengthening the peg. An interest rate differential of zero implies

identical deposit interest rates by the Federal Reserve and the CBJ and thus no risk associated with holding US Dollars versus Jordanian Dinars.

- **Returned Cheques:** This indicator measures the value of returned cheques in million JOD's that is reported regularly by the Central Bank of Jordan. A lower number in a given month entails that foreign and local investors are less likely to experience delays in collecting account receivables. Stability in this indicator, therefore, is an indication that the country has a "business as usual" investment climate in a sense that the pace of business operations, from the provision of goods and services to money collection, have been relatively intact. As a result, desire for investment is expected to increase.

2. Real Economy Indicators

- **Capital of Companies Registered:** This indicator measures the aggregate amount of capital registered in new companies every month across all sectors. A higher value of this indicator signifies that larger companies are being registered.
- **Number of Companies Registered:** This indicator measures the number of companies registered every month across all sectors. A higher number in a given month denotes that more investors are willing to register new companies to produce different goods and services.
- **Manufacturing Quantity Production Index:** This index is produced on a monthly basis by the Department of Statistics and is reported regularly by the Central Bank of Jordan. A higher value of this index signifies that more real production is occurring in the manufacturing sector which translates to a higher number of goods produced. This index does not incorporate the effect of rising prices but looks solely at real production.
- **Number of Construction Permits:** This indicator measures the number of construction permits registered at any given month for residential and non-residential purposes. A higher value for this indicator shows that there is an increased activity in the real-estate sector.
- **Taxes Collected on Real Estate Activity:** This indicator shows the value of taxes collected on real estate activity in any given month. Our original intention was to collect the value of real estate trading volume in any given month, but the historical data was not available at the same historical extent as the other indicators. It is straightforward to see the strong positive correlation between the original indicator and the chosen proxy one. A higher value for this indicator shows that more capital is flowing into real estate thereby signifying more economic activity.

3. The Human Capital Index (HCI)

- **Private Sector Credit to Total Deposits:** This indicator is the ratio of the total amount of credit facilities given to the private sector (resident and non-resident) to the

total deposits in the licensed banking sector. If this ratio increases, it signifies that the growth of credit given to the private sector outpaced the growth of deposits thereby signaling a higher appetite of risk on behalf of the banks.

- **ASE Weighted Stock Index:** This indicator is the most common measure of the health of the Amman Stock Exchange. It is constructed as a weighted average (based on free float capital) of the equities listed in that exchange. A higher value of this indicator shows that there is an improvement, on average, in equities listed in the ASE.
- **Relative Change in Foreign Investment in ASE:** This indicator is the ratio of the inflow of foreign investment in the ASE to the outflow of foreign investment. A value larger than 1 indicates that more foreign investments are being channeled in the ASE than the investment being channeled out. A higher value for this number shows that more foreign investors are willing to purchase equities listed in the ASE than foreign investors who are willing to sell, thereby showing a higher confidence on the behalf of foreign investors.

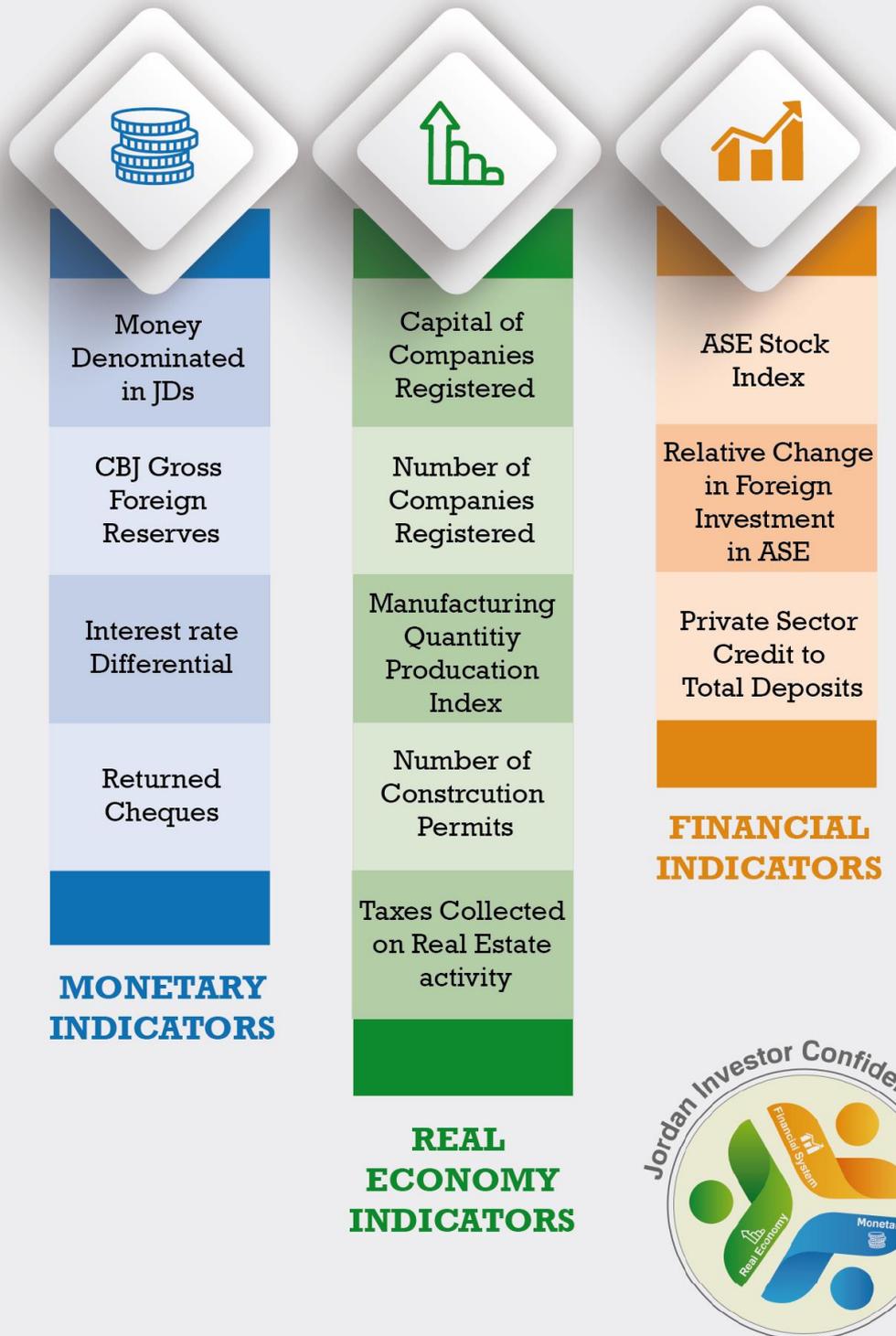
The three categories aforementioned will be converted into three different sub-indices: Monetary Sub-Index, Real Economy Sub-Index, and Financial Sub-Index. This will allow us to measure investor confidence in three different dimensions:

Monetary Sub-Index: Confidence in the monetary system and the Jordanian Dinar.

Real Economy Sub-Index: Confidence in the state of Jordan's Economy.

Financial Sub-Index: Confidence in the Jordan's Financial System.

Jordan Investor Confidence Index Structure



3. Methodology

As mentioned earlier, the JICI is a composite index that comprises three main sub-indices that are themselves constructed using a total of 12 variables. These variables do not share a unified measure by which they can be evaluated. For instance, the number of construction permits could range from zero to infinity. Therefore, to understand how whether the most recent value is desirable, the Z-Score is calculated for each variable as follows:

$$Z_Score = \frac{x - \mu}{\sigma}$$

x: monthly value of the variable

μ : the mean value of the variable

σ : the standard deviation of the variable

The Z-Score measures how many standard deviations the new monthly value is away from the average. Indeed, some variables are more susceptible to change than others, which may impact the stability of a sub-index. Therefore, the Z-Score proves to be an excellent measure that takes volatility of a variable into account: the more volatile the variable, the lower its Z-Score, hence less the impact it has on confidence.

After calculating Z-Score for all 12 variables, the average of the variables is calculated according to which sub-index they belong:

$$Monetary\ Sub_{Index} = \frac{v1 + v2 + v3 + v4}{4}$$

$$Real\ Economy\ Sub_{Index} = \frac{v5 + v6 + v7 + v8 + v9}{5}$$

$$Financial\ Sub_{Index} = \frac{v10 + v11 + v12}{3}$$

Once the Sub-Indices are calculated, they are subjected to the so-called “Feature Scaling”: A technique used by many international indices to limit the score of an index between 2 values. For the JICI, the scores are limited between 100 (minimum possible score) to 200 (maximum possible score):

$$Adjusted\ Sub_{Index} = \frac{x - minimum}{maximum - minimum}$$

After multiple deliberation with the private and the public sectors, particularly the Central Bank of Jordan and the Department of Statistics whose efforts are much appreciated, the JSF arrived at a conclusion that investor confidence is primarily driven by real economy. To verify this, one may refer to the definition of Gross Domestic Product in which investment plays a pivotal role. But most importantly, the real economy is also driven by multiple variables in the financial and monetary indices. Therefore, the JICI is calculated by a weighted average of the adjusted Sub-Indices, where the Real Economy Sub-Index is given a weight of 50%, while the financial and monetary indices are given a weight of 25% each.

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