CONTRIBUTION OF THE NEW ECONOMY TO THE PROFITABILITY OF TURKISH FIRMS: A SECTORAL ANALYSIS

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Abstract: Advances in information and communication technologies have made it easy to store, transfer and analyze knowledge. Together with globalization, information and communication technologies have increased the quality of input/output products and hence increased the productivity and profitability of firms in this New Economy. Companies stock prices are a very strong proxy for profitability, therefore, it is expected the stock market prices will also reflect the increase in profit due to information and communication technologies.

This paper tests the hypothesis of contribution of the information and communication technologies and globalization to the profitability of Turkish firms in Istanbul Stock Exchange Market using an econometric model for this purpose. Different time periods and different sectors are considered. In the econometric model, electricity sector is selected as reference sector, because this sector works for the domestic market only and is not or negligibly affected by the New Economy. This sector is adjusted for global business cycles and is used as a proxy for business cycles in Turkey. The stock price behavior of other sectors is compared with the electricity sector. Sector specific fluctuations are identified using robust regression. The hypothesis of contribution of the New Economy to the profitability of Turkish firms in Istanbul Stock Exchange Market (ISE) is tested and the amount of contribution is calculated.

The results indicate that many sectors are significantly associated with profitability increase throughout selected the period. However, for some sectors no conclusion can be reached.

Key words: Cost structure, New Economy, Istanbul Stock Exchange, Robust Regression

YENİ EKONOMİNİN TÜRK ŞİRKETLERİNİN KARLILIKLARINA KATKISI: SEKTÖREL BİR ANALİZ

Özet: Bilgi ve iletişim teknolojilerindeki ilerlemeler bilginin depolanmasını, iletilmesini ve analiz edilmesini kolaylaştırmıştır. Küreselleşme ile birlikte bilgi ve iletişim teknolojileri girdi/çıktı ürünlerinin kalitesini arttırmış ve böylece şirketlerin bu Yeni Ekonomi'de üretkenliği ve karlılığı olumlu olarak etkilenmiştir. Şirketlerin hisse fiyatları kârlılıkları için çok güçlü bir göstergedir ve bu sebeple bilgi ve iletişim teknolojilerinin sebep olduğu kârlılık artışının hisse fiyatları tarafından da yansıtılması beklenebilir.

Bu çalışma, bilgi ve iletişim teknolojileri ve küreselleşmenin İstanbul Menkul Kıymetler Borsasında işlem gören Türk şirketlerinin kârlılıklarına katkısı önsavını bu amaçla kulmuş ekonometrik bir model kullanarak sınamaktadır. Farklı zaman aralıkları ve farklı sektörler dikkate alınmıştır. Ekonometrik modelde Yeni Ekonomi tarafından az etkilenen elektrik sektörü karşılaştırma sektörü olarak kullanılmıştır. Bu sektör küresel dalgalanmaları dikkate alarak düzenlenmiş ve Türkiye'deki konjonktürel dalgalanmaların temsilcisi olarak kullanılmıştır. Diğer sektördeki hisse senedi davranışları bu sektörle karşılaştırılmıştır. Sektörlere has dalgalanmalar sağlam regresyon yöntemleri ile tespit edilmiştir. Bu sayede Yeni Ekonominin İstanbul Menkul Kıymetler Borsasında işlem gören Türk şirketlerinin kârlılıklarına katkısı sınanmış ve katkı değeri tespit edilmiştir.

Sonuçlara göre bir çok sektör seçilen zaman aralığı için kârlılık artışı yaşamakta, fakat bazı sektörler için hüküm verilememektedir.

Anahtar Kelimeler: Maliyet yapısı, Yeni Ekonomi, İstanbul Menkul Kıymetler Borsasında, Sağlam Regresyon

Introduction

Developments in information and communication technologies (ICTs), the globalization of businesses and this transformation process, gave rise to *"a new economy"* (Kallio et al, 2004; Pohjola, 2002). Prior to this in 1997, Editor Stephen B. Shepherd of the journal Business Week wrote about it in an editorial titled *"The New Economy: what it really means"* and henceforth this kind of economy is called the New Economy. Knowledge-based production

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factors have become more dominant than traditional production factors in economic growth and development process, especially in 1990s with internal growth theories. With this revolution, "new" economic system that emphasizes importance and competitive power of knowledge began to be defined as the New Economy, knowledge economy or information economy. However the *new* economic system has changed structure of economic conceptions such as cost, profit, and forced to transformation economies in both micro and macro level. Advances in ICT's have made it easier to store, transfer and analyze knowledge. Together with globalization, ICT's have increased the productivity, quality/quantity of output products and hence profitability of firms in the New Economy. It is expected for firms that benefit from the advantages of the New Economy; the stock market prices will also reflect this profitability, because profits are a very strong proxy of a company's stock price (Investopedia 2010).

This paper tests the hypothesis of contribution of the New Economy to the profitability of Turkish firms in Istanbul Stock Exchange Market (ISE) using an econometric model for this purpose. Different time periods and different sectors are considered. In the econometric model, a reference sector that is not or negligibly affected by the New Economy is used to measure the amount of contribution by the New Economy to firm's profitability. Afterwards, the reference group is compared with the sectors that benefit from ICT's and/or globalization. Using these results, the question to the existence and/or amount of contribution of the New Economy to different sectors is answered.

The paper is organized as follows: section 2 summarizes the New Economy and firm profitability literature. This review is designed to guide the reader on how the New Economy affects firm's profitability. Section 3 presents econometric specification of the analysis, which was designed to measure the existence and amount of link between the New Economy and firm profitability from listed firms in ISE, and section 4 concludes.

1. The New Economy and Firm Profitability Literature

The New Economy has influenced the world's economic system in both micro and macro level. This paper is provides evidence for the influence of the New Economy in the micro level. There are also statistical evidences for the macro level in the related literature. Jalava and Pohjola (2002) find that about two-thirds of the recent improvement in labor productivity can be attributed to ICT's in the United States (US). Thus, in US the case for an ICT revolution led shift to the New Economy seems to be finding support from fundamental statistics. There is also support from statistics for other countries, for example in 1997, ICT industries accounted for 3-4% of employment, 6-9% of value added, 10-25% of exports and 25-40% of research and development expenditure in the business sectors of the EU, Japan and US (Koski et al, 2002).

Kallio et al (2004) use the paper of Pohjola (2002) to argue that ICT spending is strongly correlated with the level of income but significant disparities also exist between countries at similar income levels. In addition, they state that different countries are in a different transition phase of the New Economy. In their paper Shao and Shu (2004) measure productivity growth of the ICT using the Malmquist Total Factor Productivity index. Their results indicate that among the 14 countries examined, 10 had witnessed productivity growth in their ICT industries. Most of the productivity growth measured is due to technological progress and each country's ICT industry manifests its own particular patterns in various performance measures. Stiglitz (2003) also supports the fact that each country has its own patters and adds that the countries that have managed the globalization process well have shown that globalization can be a powerful force for economic growth. Galbi (2001), Saxton (2003); Lee et al (2005) and Salvatore (2003) are other papers that support these claims.

The link between the New Economy and economic growth is quite simple. One of the main contributors to the New Economy is the rapid improvement in ICT's. They have contributed especially to the possibilities of storing, sharing and analyzing information throughout the different sectors of the economy. These increased capabilities improve productivity and lead to economic growth. The improvement of ICT relates to both the quality of equipment and software as well as to the sharp decline in quality adjusted prices. This of course leads to rationally behaving consumers substituting ICT equipment and services for other goods and services (Kallio et al, 2004). There are examples of how a firm has sold all of its physical structures and has moved its business to virtual Internet environment thereby improved its sales and financial status; how planes designed in virtual computer environment save more fuel; how firms decreased their cost by using Internet facilities instead of the ordinary telephone system (Gates, 1999); how ICT's improved the financial status of firms (Tapscott, 1997). This implies that ICT's have produced innovative products that increase productivity and reduce production costs, which is one of the main assumptions of this paper.

Innovative products are usually available at the same time for all firms worldwide. However, not all firms adopt these innovations immediately. Diffusion of innovation theory by Rogers (2003) is famous in adoption literature, because it provides a detailed overview of the theoretical basis for how an innovation comes to be widely used in a population and it provides a detailed discussion of the theoretical basis for adoption. In addition, it addresses the innovation-diffusion process, how economic actors influence this process, how communication influences change, the role of organizational and social system characteristics and the characteristics of adopters. Diffusion can be defined as the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003). Rogers explains that there are a number of factors acting together to influence the diffusion of an innovation, but four major factors can be stated as the innovation itself, how information about the innovation is communicated, time, and the nature of the social system into which the innovation is being introduced. All these four factors together determine the important aspect of model, namely, the rate of adoption of innovations. In addition, the rate of adoption refers to the fact that certain firms adopt innovations more quickly than others, because diffusion is a process that occurs over time and can be seen as having five distinct stages, namely, knowledge, persuasion, decision, implementation, and confirmation of firms. Potential adopter firms of an innovation must learn about the innovation, be convinced from the benefits of the innovation, decide to adopt it, confirm (reaffirm or reject) the decision to adopt the innovation, and implement the innovation.

2. Model

Ceteris paribus, the rapid improvements in ICTs have contributed to the profitability of firms by increasing the possibilities of storing, sharing and analyzing information. These possibilities also improved productivity and hence decreased costs, which lead to increased economic profits. In addition, increased network capabilities and globalization of businesses increased the consumer number of and hence demand for firms, which lead to increased economic profits.

A firm's stock price will factor in many different variables including the type of industry the firm operates in, but profits are a very strong proxy of a company's stock price (Investopedia 2010). In the short run, a company's stock price can make small to large price adjustments, depending on the position of the economy, news releases and earnings reports. In the long run, a firm's stock price will depend largely on the firm's overall profits. So any variable that has an permanent increasing effect on profits will also have a permanent increasing effect on

firm's stock price. Therefore, for a typical firm *i,* a simple stock price function can be represented as follows:

$$P_i=F_i(BC, ICTgl, fn_i, sn_i)=F_{1i}(BC; ICTgl) + F_{2i}(fn_i)+ F_{3i}(sn_i) \quad (1)$$

Where the variables are as follows:

BC=Business cycle or movement of macro economic activity,

ICTgl =ICT and globalization effect

fn_i =events that have a temporary effect on profits of firm *i.*

sn_i =events that have a permanent effect on profits of firm *i.*

Increased profitability can be observed in the share prices of individual firms. Unfortunately, it is very difficult to follow (the variables fn_i, sn_i,) the investments or marketing decisions of individual firms using ISE bulletins. In addition, speculative movements in market prices of individual firms make it difficult to measure the impact of ICT's and globalization on the profitability of firms in the micro level. Instead, sector indices, which are calculated using the weighted average of firm stock prices, can be used. They represent the common price trend of firms in this sector. If ICT improvements and globalization have profit increasing effects then the sector index will reflect this fact with increasing values. In addition, the sum of unexpected (the variables fn_i) random events can be considered as a random variable, which has the normal probability density due to central limit theorem. Using this fact a sector index value for *n* firms can be calculated as follows:

$$S=\sum w_i P_i=\sum w_i F_i(BC, ICTgl, fn_i, sn_i)=\sum w_i F_{1i}(BC; ICTgl) + \sum w_i F_{2i}(fn_i)+ \sum w_i F_{3i}(sn_i) \quad (2)$$

$$S=G(BC; ICTgl) + \varepsilon+ \delta$$

Where

S : Sector index value.

$G(BC; ICTgl)=\sum w_i F_i(BC; ICTgl)$: The overall effect of business cycle, ICTs and globalization on sector index. Since ICTs and globalization influence the production in the economy they will also affect the business cycle, hence there is a correlation between *BC* and *ICTgl* . In order to overcome the correlation a proxy sector is used that was able to represent the behavior of the business cycle but that was not affected by ICTs and globalization. This sector came out to be the electricity sector, which is illustrated in Figure 1. Assuming a simple linear relation, the function can be reduced to $G(BC; ICTgl) =(\gamma+ \mu\ ICTgl)+ \beta\ BC$.

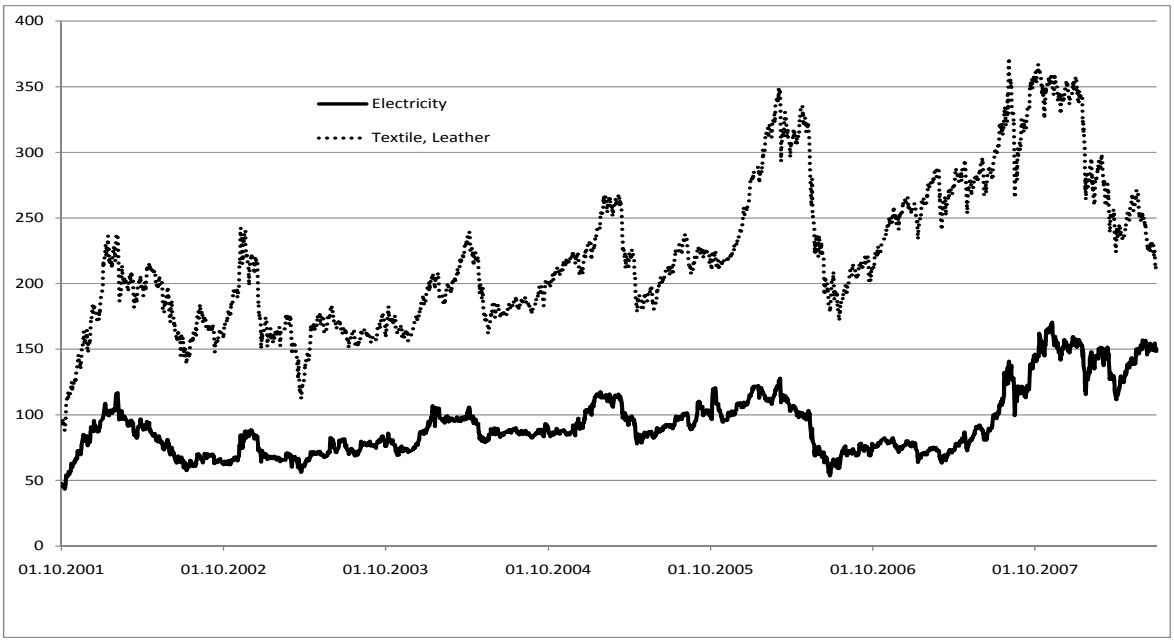
$\varepsilon =\sum w_i F_{2i}(fn_i)$: Sum of unexpected small temporary changes in price of a firm and hence in the index value. This value can be considered as a random variable with normal distribution..

$\delta =\sum w_i F_{3i}(sn_i)$: Sum of unexpected permanent or large temporary changes in price of a firm or the sector index. This value represents a structural change in the sector or the effect of a variable that is missing in the model. In this analysis, robust regression methods are used to detect the effect of this variable.

In order to test the hypothesis of contribution of the *New Economy* to the profitability of Turkish firms in ISE the following econometric model is used:

$$S=(\gamma +\mu\ ICTgl+ \delta) + \beta\ BC+ \varepsilon =\alpha+ \beta\ BC+ \varepsilon \quad (3)$$

Figure 1: Sector index values for Textile, Leather and Electricity sectors



Index values for Industrials; Food, Beverage; Textile, Leather; Wood, Paper, Printing; Chemical, Petroleum, Plastic; Non-Metal, Mineral Products; Basic Metal; Metal Products, Machinery; Services; Transportation; Tourism and Financials from ISE for the period 01.10.2001 to 30.06.2008 are used. Starting from 01.10.2001 samples of sizes of 60, 30 and 10 are formed and the coefficient of time trend values for α and β are tested for a statistically significant value. The samples of size 60, 30 and 10 are formed in order to detect possible sector specific short temporary effect.

The date starting from 01.10.2001 is important because after this date the Internet, cell phones became popular and a more export-import oriented production scheme started in Turkey. For the variable *BC* the electricity index is used because electricity prices were almost constant around 0.43 Cent/kWh; it was a sector that only produced for domestic market (no globalization); and ICTs had no contribution by increasing electricity production in this sector. In order to separate globalization and ICT effect two types of prices, which are issued by ISE, are used. The first type is in USD based closing prices, which are internationally comparable index values and the second type is Turkish Lira (TL) closing prices. The former alleviates the effect of globalization so results using USD based closing prices will mainly contain the contribution of ICTs. The latter has no adjustment for globalization therefore it contains both globalization and ICT contribution to profitability.

According to Rogers' diffusion of innovations theory (Rogers, 2003), not all firms adopt an innovative ICT product simultaneously. Therefore, different firms experience increase in profits in different time periods and the sector index will reflect this fact by gradually increasing value in $\alpha=(\gamma+\mu\ ICTgl)$. We expect that if firms in a sector adopt an ICT product then this α value is going to increase gradually for each following sample. Therefore, we calculate an estimator for α using a regression with time trend and check for the significance of the time trend coefficient. In addition, we do a second regression with time trend for β and check for the significance of the time trend coefficient for this coefficient also. If the time trend coefficient of β is positive and significant this implies that the business cycles increased the fluctuations in this sectors. In this case we conclude that there are other variables that changed the role of this sector in the economy and the effect of *ICTgl* cannot be separately determinate. In this case, we conclude that the impact of *ICTgl* is indeterminate for this sector.

In addition, we check for structural or trend change in α and β. If all the firms adopt an innovative ICT product simultaneously and if profitability increases at the same period, which has a low probability, then the sector index reflects this fact by a jump in *S* value and a significant δ value. This value can be detected using robust regression methods. Robust regression methods are used to detect outlier observations that deviate substantially from the linear relation of the rest of the observations (Rousseeuw and Zomeren, 1990). Therefore, if there is a structural change then its effect can be isolated and measured independently. In order to detect outlier values, FAST-LTS algorithm developed by Rousseeuw and Van Driessen (1998) and FAST-MCD algorithm developed by Rousseeuw and Van Driessen (1999) are used. These programs can be downloaded from the internet[‡].

As a summary, this model is able to measure the effect of *ICTgl* variable if α is an increasing function while β be a non-increasing function of time. A statistically significant coefficient implies that *ICTgl* are effective in this sector and the value of the shares (profitability) increases with the value of the coefficient for this period.

3. Results

Table 1: Regression results for USD based index (60 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	11.732	4.410	1.992	0.284	1.779	0.640	5	indeterminate
Food, Beverage	21	18.047	4.266	1.518	0.259	3.540	0.195	2	indeterminate
Textile, Leather	19	2.441	3.301	1.885	0.173	0.495	1.255	2	**Significant**
Wood, Paper, Printing	15	7.768	2.088	2.252	0.080	0.001	0.234	4	indeterminate
Chemical, Petr., Plastic	21	8.579	3.952	2.170	0.238	1.312	0.111	4	**Significant**
Non-Metal, Min. Products	24	30.239	6.183	1.483	0.428	6.510	2.962	3	indeterminate
Basic Metal	14	20.965	3.699	2.881	0.212	0.237	0.959	3	indeterminate
Metal Products, Machinery	24	13.276	3.659	1.797	0.211	0.471	0.175	4	**Significant**
Services	1	10.451	6.296	1.912	0.447	5.792	1.775	5	indeterminate
Transportation	4	2.765	1.621	2.405	0.050	0.563	0.736	4	**Insignificant**
Tourism	5	2.769	2.459	2.125	0.110	0.157	2.044	5	**Significant**
Financials	95	12.057	2.202	2.275	0.090	0.114	0.325	5	indeterminate
Banks	17	14.798	2.114	1.741	0.085	0.346	0.570	6	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 56.

For the sectors where the coefficient is significant, there was no structural change in any of the sectors. However, there were temporary deviations from the linear time trend and these deviations are identified as outliers. In addition, DW autocorrelation, WS heteroscedasticity and JB normality tests show that the coefficients and statistics are not biased. For example, in Table 1 the coefficient of 2.441 for Textile, Leather sector implies that the shares in this sector increased on the average value 2.441 in each 60 sessions (30 day). For this sector, the gradual in increase in the value of the shares is illustrated in Figure 1. Therefore, ICTs have significantly contributed to this sector. In Table 2 the overall effect of the New Economy is given and in this table the coefficient of 83.039 for Textile, Leather sector implies that the shares in this sector increased on the average value 83.039 in each 60 sessions (30 day).

[‡] Antwerp Group on Robust & Applied Statistics website: http://www.agoras.ua.ac.be/

Table 2: Regression results for TL index (60 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	521.584	5.691	2.149	0.379	0.000	0.469	1	**Significant**
Food, Beverage	21	731.47	5.028	1.969	0.327	2.952	1.182	2	**Significant**
Textile, Leather	19	83.039	3.657	2.174	0.201	0.038	1.838	1	**Significant**
Wood, Paper, Printing	15	341.613	3.236	1.995	0.168	0.182	0.311	2	**Significant**
Chemical, Petr., Plastic	21	302.148	4.279	1.395	0.260	2.690	0.864	2	**Significant**
Non-Metal, Min. Products	24	959.109	6.213	1.851	0.431	1.116	0.782	3	**Significant**
Basic Metal	14	699.04	5.392	2.792	0.368	0.313	0.044	4	**Significant**
Metal Products, Machinery	24	566.60	4.595	2.044	0.281	0.021	0.112	0	**Significant**
Services	1	408.30	8.363	2.581	0.574	1.737	0.045	2	**Significant**
Transportation	4	118.11	2.671	2.167	0.125	0.767	0.204	4	**Significant**
Tourism	5	101.18	3.154	2.629	0.172	0.496	1.071	6	**Significant**
Financials	95	844.76	4.672	2.315	0.292	0.003	0.828	1	indeterminate
Banks	17	1187.7	5.014	2.466	0.322	0.016	0.566	1	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 56.

Table 3: Regression results for USD based index (30 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	8.517	7.931	1.867	0.372	2.090	0.087	4	indeterminate
Food, Beverage	21	9.775	6.217	2.126	0.269	2.148	1.183	5	indeterminate
Textile, Leather	19	1.391	5.199	1.779	0.202	0.293	0.909	3	**Significant**
Wood, Paper, Printing	15	5.877	4.538	1.737	0.165	3.663	0.728	6	indeterminate
Chemical, Petr., Plastic	21	7.097	8.334	1.856	0.396	4.620	0.721	4	**Significant**
Non-Metal, Min. Products	24	13.244	7.751	1.829	0.375	4.628	1.057	10	indeterminate
Basic Metal	14	10.185	5.896	2.017	0.260	0.283	1.793	11	indeterminate
Metal Products, Machinery	24	9.073	6.886	1.835	0.309	0.464	0.296	4	**Significant**
Services	1	5.716	10.468	1.660	0.530	3.121	0.912	13	indeterminate
Transportation	4	2.124	3.516	1.899	0.104	0.066	0.368	4	**Significant**
Tourism	5	1.026	2.428	1.575	0.055	0.368	2.513	9	indeterminate
Financials	95	8.884	5.298	1.674	0.221	3.172	0.796	11	indeterminate
Banks	17	13.010	5.637	1.850	0.239	3.174	0.754	9	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 112.

Table 4: Regression results for TL index (30 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	236.00	8.941	2.102	0.432	1.608	0.252	5	**Significant**
Food, Beverage	21	348.31	7.179	2.190	0.327	5.722	0.290	4	**Significant**
Textile, Leather	19	33.152	4.952	1.944	0.188	0.220	2.166	4	**Significant**
Wood, Paper, Printing	15	172.33	5.407	1.992	0.221	0.383	0.150	7	indeterminate
Chemical, Petr., Plastic	21	160.15	6.267	1.988	0.274	3.534	0.050	6	**Significant**
Non-Metal, Min. Products	24	397.05	9.876	1.656	0.494	5.804	1.916	10	indeterminate
Basic Metal	14	313.94	6.817	2.413	0.311	0.006	0.307	7	**Significant**
Metal Products, Machinery	24	245.16	7.264	2.034	0.332	0.084	0.364	4	**Significant**
Services	1	176.13	12.472	1.962	0.609	2.283	0.784	10	**Significant**
Transportation	4	62.353	3.872	1.851	0.124	0.234	1.139	4	**Significant**
Tourism	5	44.890	4.040	1.996	0.138	0.082	1.876	8	**Significant**
Financials	95	408.52	8.061	1.827	0.385	1.558	1.060	11	indeterminate
Banks	17	575.73	8.807	1.632	0.430	1.724	1.346	9	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 112.

Table 5: Regression results for USD based index (10 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	2.231	11.280	1.885	0.288	3.067	1.874	20	indeterminate
Food, Beverage	21	2.643	8.831	1.979	0.197	2.503	0.280	18	indeterminate
Textile, Leather	19	0.322	6.504	1.911	0.116	0.260	0.810	14	**Significant**
Wood, Paper, Printing	15	1.659	6.641	2.041	0.122	1.465	0.318	17	indeterminate
Chemical, Petr., Plastic	21	1.430	8.159	1.809	0.174	0.283	0.386	18	indeterminate
Non-Metal, Min. Products	24	3.850	13.488	1.557	0.373	13.833	2.306	29	indeterminate
Basic Metal	14	2.299	7.706	2.277	0.167	0.588	8.290	38	indeterminate
Metal Products, Machinery	24	2.424	9.405	1.733	0.217	0.975	0.102	16	indeterminate
Services	1	1.618	11.029	1.958	0.277	7.605	0.519	18	indeterminate
Transportation	4	0.550	4.841	1.906	0.069	0.055	0.917	21	**Significant**
Tourism	5	0.522	6.329	1.963	0.114	0.464	3.001	23	**Significant**
Financials	95	2.922	7.468	1.687	0.158	1.786	4.525	37	indeterminate
Banks	17	3.679	6.588	1.769	0.127	1.070	5.903	36	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 337.

In the previous tables, the contribution of New Economy to the Financials and Banking sectors could not be identified with the constructed model. The reason for this fact is that these sectors have a more complex behavior, therefore; they need a model with additional variables or different functional form. In addition, this fact is true for

The results in Tables 1 and 2 are robust if there are sector specific events that last for months, while the results in Tables 3 and 4 are robust if there are sector specific events that last for

weeks and finally the results in Tables 5 and 6 are robust if there are sector specific events that last for days.

Table 6: Regression results for TL index (10 observation results).

Sector	*Sector Size*	*coeffi.*	*t-stat*	*DW*	R^2	*WS*	*JB-stat*	outlier	Impact of *ICTgl*
Industrials	15	85.954	18.973	1.795	0.536	5.346	0.297	23	**Significant**
Food, Beverage	21	136.493	15.133	2.011	0.430	3.035	1.620	32	**Significant**
Textile, Leather	19	10.122	8.538	1.889	0.185	0.111	0.763	13	**Significant**
Wood, Paper, Printing	15	63.080	10.804	1.689	0.273	0.005	1.342	24	indeterminate
Chemical, Petr., Plastic	21	55.528	12.087	1.923	0.318	19.110	0.620	21	**Significant**
Non-Metal, Min. Products	24	146.905	20.842	1.321	0.578	9.451	0.522	18	**Significant**
Basic Metal	14	113.181	16.783	1.857	0.488	2.667	5.223	39	indeterminate
Metal Products, Machinery	24	77.469	13.164	1.873	0.351	0.262	0.668	14	**Significant**
Services	1	62.380	17.933	1.976	0.505	14.007	0.765	20	**Significant**
Transportation	4	23.203	8.794	2.032	0.198	0.358	1.329	21	**Significant**
Tourism	5	20.032	9.172	1.680	0.211	0.021	1.163	21	**Significant**
Financials	95	148.43	15.362	1.810	0.435	3.359	1.070	29	indeterminate
Banks	17	192.11	14.462	1.870	0.408	4.697	2.889	32	indeterminate

Notes: DW=Durbin Watson statistics, WS=White heteroscedasticity statistics, JB=Jarque–Bera statistics. Sample size is 337.

Conclusion

This paper tests the hypothesis of contribution of the New Economy (ICT products and globalization) to the profitability of Turkish firms in ISE using an econometric model for this purpose. Stock prices for various sectors are used to measure the impact of New Economy to the profitability of firms. The effect of missing variables is isolated using robust regression methods. The constructed model could identify the contribution of ICTs and globalization separately. This paper contributes to the literature in the micro level by providing statistical evidence for the existence of contribution of the New Economy.

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