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Harun Uçak (Ed.)
Alanya Alaaddin Keykubat University

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Alanya Alaaddin Keykubat University, Turkey

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PREFACE

Economics is all about choices, under which conditions these choices are made and the circumstances of these choices. Economics can be defined few different ways such as; it's the study of scarcity, the allocation of scare resources among the choices and the study of decision making. Since economics involves topics like finance, recession, banking and wealth, there is a misconception that economics is being all about money and the stock market. However, economics is a much comprehensive discipline that help us understand yesterday's trends, interpret today's matters and make prediction for future.

Economic conditions are constantly changing, and each generation looks at its own problems in its own way. Economic laws are a part of the material which Conscience and Common-sense have to turn to account in solving practical problems, and in laying down rules which may be a guide for lifetime. While the laws of economics remain broadly the same, there is still space and need for new scientific developments in economics in order to evaluate and examine the current challenges. In order to discuss recent developments on economic researches, we aimed to bring scientists, decision and policy makers, entrepreneurs, investors, and post graduate students from all around of the world.

The 1st International Conference on Economic research, ECONALANYA 2017, was held on 20-21st October 2017 in Alanya, Turkey and includes presentations on macro and micro level economics. The conference is organized by Alanya Alaaddin Keykubat University in order to bring together researchers from all over the world. Participants from 20 countries made the conference truly international in scope. While the topics presented at the conference varies, the key speech topic of the conference is chosen as 'The Economic Effects of BREXIT Worldwide".

Why British vote to leave the European Union would have consequences far larger than the UK's proportional share of the global economy. The European Union lost an important family member and the largest market as a result of the referendum held in Brain. The consequences of BREXIT should be studied carefully and the impacts would be evaluated extensively. The conference key note speakers shared their views and academic researches on this topic. Prof. Dr. Paolo Luciano Adalberto Manassefrom University of Bologna, Italy gave a speech on 'Brexit and Financial Markets'. Prof. Dr. Ádám Török Hungarian Academy of Sciences (MTA) Secretary-General, Hungary shared his study of 'Is there a third way for Brexit?' and Prof. Dr. Nejat Erk from UMUC European Division, Turkey comment on the topic with his study of 'Brexit and Turkey, with Special Reference to Cities'.

It is my wish that this conference that allows scientists, practitioners and independent researchers outside universities to present their theoretical, analytical and experimental research will contribute to the scientific literature and policy-makers' decisions, and I would like to express my appreciation to all participants and keynote speakers for their significant contributions. Last but not least, I would like to send my gratitude to Dr. Yakup Arı, Dr. Sezin Zengin Fariasmartinez, Yaşar Kaçmaz, Saliha Çelik, Mehmet Bayırlı, Burcu Yaman, Muahmmet Necati Çelik, bekir Çınar and Nazlı Türker for their valuable assistances and co-operation. I would also like to gratefully acknowledge the generous support from Rector of Alanya Alaaddin Keykubat University Professor Ahmet Pınarbaşı, and I would like to extend my thanks to the Major of Alanya Municipality Adem Murat Yücel and the head of TÜRSAB Regional Executive Board Alanya Suat Çavuşoğlu. Lastly, I would like to thank the Central Bank of the Republic of Turkey (CBRT) for their support and sponsorship.

Harun UÇAK, Ph.D.
Chairman/Editor

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POLAND'S MONETARY POLICY DURING TWO TRANSITIONS: THE INTERWAR AND POST-COMMUNIST PERIODS

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Abstract

During the last one hundred years, Poland faced two important transitions aiming at creating a modern, well-functioning economy. The first one, after a longer-than-one-century partition period, started in late 1918 and lasted until WWII. The second one, following the 40 years of socialist system, began at the end of the 1980s and lasts until present times. In both periods monetary policy was of critical importance in explaining Poland's macroeconomic behavior.

Hence, this paper contrasts monetary policies conducted in Poland during the two transitions. How did these policies contribute to dealing with the major challenges of the above-mentioned periods – inflation (hyperinflation of the first half of the 1920s and the 1990s strong inflation) and recession (the Great Depression and the so-called Great Recession followed by the euro area crisis)? The study shows that different monetary arrangements (the gold exchange standard vs the fiat money framework) were instrumental in this respect. The analysis not only stresses dissimilarities in adopted monetary strategies but also shows striking similarities (e.g. higher interest rates in Poland than those in case of her main economic partners in both eras).

Special attention in the paper is paid to the recession periods and the developments following them. During the crises starting in 1929 and 2007, like most countries, Poland was heavily hit by a series of strong external shocks. In both historical episodes, however, her economy's reaction sharply differed.

The events of 1929 and subsequent years resulted in a crisis that lasted in Poland, back then an agricultural country, as long as until 1935. Not only was its duration longer than in many other countries, but also its depth was more severe. Real national income shrank by more than 20 per cent, industrial output – by almost 40 per cent, wholesale prices declined by more than 50 per cent, and the unemployment rate reached over 30 per cent. Undoubtedly, Poland in the 1930s "suffered through one of the worst examples of a depression" (Wolf 2007, p. 352)[1].

A very different picture of the Polish economy emerges, however, when looking at the recent crisis. Specifically, Poland underwent only temporary slowdowns: in 2009 and 2012-2013; actually, since 2007 her GDP has grown by more than 40 per cent. The unemployment rate increased, reaching a peak of 10.3 per cent in 2013, i.e. well below the average for the EU and the euro area. Finally, inflation substantially declined, however, it was only in mid-2014 that a mild consumer price deflation appeared, and lasted almost until the end of 2016.

Her much better performance during the recent crisis period can be explained by two groups of factors. First, by very different stabilization policies, in particular monetary policy (including the exchange rate one). Second, by distinct structural developments (resulting both from authorities' policies and spontaneous processes). Several factors responsible for Poland's superior performance during the recent period, monetary policy being one of them, also contributed to her economic success vis-à-vis other EU countries. As suggested earlier, however, in this paper only monetary policy issues and questions directly related to them are discussed.

Keywords: Poland, monetary policy, inflation, economic and financial crises, exchange rates

[1] Wolf, N. (2007). Should I stay or should I go? Understanding Poland's adherence to gold, 1928-1936. *Historical Social Research* 32: 351-368.

UPWARD NOMINAL WAGE RIGIDITY

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Abstract

In Portugal, as in many other countries in continental Europe, the collective wage agreements between trade unions and employer associations are systematically extended to non-subscriber workers and employers. Since these agreements establish wage floors for most job titles, their frequent extension is equivalent to setting a wide range of compulsory minimum wages, which are regularly adjusted upward. In some firms these extensions can result in a wage structure that may not be appropriate, causing fewer hirings or added dismissals. With some trepidation, we call this phenomenon "upward nominal wage rigidity" (UNWR), in close symmetry with the Keynesian notion of downward nominal wage rigidity.

According to our estimates, firms that are more heavily affected by the change in the bargained wage floors decrease their hiring rates and, more importantly, significantly increase their separation rates. We estimate that an increase of 10 percent in our measure of implied wage bill growth (the increase in the wage bill that firms have to undertake as result of the UNWR) leads to a small fall in the hiring rate (0.5 percentage points) but to a significant increase in the job separation rate (3.2 percentage points), leading to a considerable job destruction.

We also estimate how those externally driven wage increases impact on the probability of firm exit: a 10 percent increase in the wage bill generated by the increase in the bargained wage floors significantly increases the probability of firm closure (2.2 percentage points).

These empirical results should call into question the functionality of the architecture of the Portuguese wage setting system. In particular, it raises serious concerns with respect to the widespread use of extension mechanisms. Firms confront not only severe downward nominal wage rigidity because nominal wage cuts are forbidden, but also because of what we tentatively call "upward nominal wage rigidity".

Keywords: wage rigidity, worker flows, collective bargaining, newly-hired workers

1. Introduction

The role played by labor market institutions in molding the dynamics of employment and the structure of wages is a matter of considerable debate both empirically and conceptually. Even though there is an ample discussion about the role of labor market institutions and their potential contribution to the sluggish adjustment of employment, there is still scant empirical evidence at the micro level about the way collective agreements influence firms' hiring and firing decisions.

Many institutional factors may hamper the efficient allocation of workers and jobs. Caballero and Hammour (2000) stress that a number of distortions in product, input, and credit markets can introduce inefficiencies in the reallocation process. Aside from the impact on flows stemming from quantitative restrictions on labor market adjustment, wage-setting policies, such as legal provisions restricting wage

adjustment, wage schedules determined at the sector level, or the presence of national minimum wages, also have an impact on the reallocation.

An additional factor that might affect the allocation of workers and jobs is the widespread practice of extending collective bargaining agreements to non-subscriber workers and employers. Since these agreements establish wage floors for most job titles, their frequent extension is equivalent to setting a wide range of compulsory minimum wages, which are regularly adjusted upward, even if the scope in most cases is restricted only to some sectors or industries. In some firms these extensions can result in a wage structure that may not be appropriate for some workers, causing fewer hirings and/or added dismissals. As pointed out by Cahuc and Zylberberg (2009) and Teulings and Hartog (2008), these potential job losses are the result of setting wage floors above the marginal productivity for some workers in firms that are bound by those extensions.

Legal provisions for mandatory extensions exist in several European countries such as Spain, France, Germany, Italy, the Netherlands, and Belgium, and they explain to a great extent the large gap observed between union density and union coverage.[1]

The extension of contracts is also an important feature of the Portuguese wage setting system. Martins (2014) shows that between 2007 and 2011 around 90 percent of the sectoral collective wage agreements in Portugal were extended by the Ministry of Employment. The extension of collective agreements were issued almost uniformly throughout the twelve months of the year.

The scattered timing of these extensions introduces a type of wage rigidity that is similar to that emphasized in some macroeconomic models. These models (see Olivei and Tenreyro (2007, 2010) and Card (1990)) underscore the importance of the timing of collective wage agreements for the employment fluctuations observed in some advanced economies. Due to contract staggering, they show that wage rigidity is toned down in periods when collective agreements are under negotiation: if the shock occurs at the time of wage negotiations, the wage bargaining process can reflect the impact of the shock and wages are set accordingly; if the shock occurs after wages have been settled by contracts, wages are unable to be adjusted and the risk of job losses is magnified.[2]

The impact of the (scattered) extension of collective agreements on employment is also examined by Martins (2014)[3]. Using data for Portugal covering the period between 2007 and 2011, this study analyzes the impact on employment over the four-month period following the extension of a collective agreement. The results show that over this time window the total number of workers in an industry fell by 1.7 percent. The detrimental effect of these extensions on employment is driven to a large extent by the fall in firms' hirings and not by an increase in separations, which remain largely unaffected. On the other hand, non-formal employment (the so-called service providers), which is not subject to the extension of wage floors, increased by 1.1 percent. In complement to this exercise the study also examines the impact of the extension of collective agreements on firm entry and exit. The evidence suggests that the entry of new firms is not affected by the extension of collective agreements, while the number of firms that leave an industry increases by 4 percent.

In this paper we examine the microeconomic link between the increase in bargained wage floors and the employment outcomes. As in Martins (2014), we measure the impact on firms' hirings and separations, and the probability of closure resulting from firms' obligations to adjust their wages upward in order to comply with the new wage floors. We call this phenomenon *upward nominal rigidity*. However, unlike the approach followed by Martins (2014), our focus is not on the timing of the increase in bargained wage floors but on the magnitude of their impact on each particular firm. For this purpose we compute for each firm (on the basis of each job title) the increase in the total wage bill necessary to comply with new collective wage agreements (*implied wage bill growth*).

[1] See Visser (2013) for a comprehensive survey of wage bargaining institutions in a wide number of developed countries.

[2] Di´ez-Catala´n and Villanueva (2014) test this hypothesis for Spain in the period surrounding the late-2008 economic decline. They show that the probability of job separation increased significantly for workers covered by contracts negotiated before the drop in economic activity. Their results also suggest that the automatic extension of collective agreements in Spain during this period accounted for 36 percent of the increase in the probability of job separation for low-skilled workers.

[3] See also Foug`ere et al. (2016) for France.

The impact of the upward nominal wage rigidity on each particular firm will be conditional on its workers' positions in the wage distribution. In each firm we can distinguish between two major groups of workers: those who are already collecting a bargained wage equal to or above the newly-agreed wage floor and whose contribution to the implied wage bill growth is zero; and those who are receiving a bargained wage that is below the new wage floor and whose contribution to the implied wage bill growth is the difference between their current wage and the new wage floor. The impact of increasing the wage floors is potentially more acute in firms with a greater fraction of the latter group of workers.

In the second part of the paper we perform a different but somewhat complementary exercise by restricting the analysis to the newly-hired workers, i.e. workers with job tenure of less than one year. Most micro-level empirical research aimed at analyzing the degree of wage rigidity has been mostly concerned with wage changes of individual employees. This invariably restricts the focus of analysis to wages in ongoing employment relationships (see Haefke et al. (2007)). In contrast, the degree of rigidity of wages of newly-hired workers has received much less attention, despite the recognized importance of wages of this particular labor force group for job creation and for understanding the behavior of wages over the business cycle (see Pissarides (2009) and Galuscak et al. (2012)): newly-hired workers are the "marginal" workers that affect the decision of firms to create new jobs.[4]

The purpose of this exercise is to identify the extent to which firms' insider forces are important for the determination of wages of newly-hired workers. Bils et al. (2014) provide empirical evidence supporting the notion that the wages of new hires are partially determined by the prevailing wages of stayers. As Blanchard and Summers (1987) point out, if wage changes are essentially determined by insider factors (such as the internal wage schedule or the wages of workers with the same qualifications), this may generate hysteresis in the economy, so that the impact of shocks may last for long periods. We first analyze the relative importance of internal factors *vis-`a-vis* the external factors (such as the wages of workers with similar qualifications and experience or the availability of workers with similar characteristics in the labor market) in the determination of entry wages. We then investigate the impact of the external wages on job flows (i.e. hirings and separations) of newly-hired workers as well as on the probability of firm closure.

The remainder of the paper is structured as follows. A description of the main institutional characteristics of the wage setting process in Portugal is presented in Section 2. In Section 3 we describe the main features of our database. Section 4 looks closely at the employment effects of increases in the wage floors for each specific job title and estimates the impact of externally driven wage increases on the probability of firm exit. In Section 5 we attempt to disentangle the internal and external drivers of the wages of newly-hired workers in order to reveal the link between external (internal) wages and job flows. Finally, in Section 6 we summarize the main results of our paper and suggest some economic implications.

2. Institutional Wage Setting in Portugal

In this section we succinctly describe some of the main institutional characteristics of the wage setting process in Portugal. The Portuguese Constitution provides the legal principles of collective bargaining and grants unions the power to negotiate. The effects of the agreements are formally recognized and considered valid sources of labor law. Concerning the bargaining mechanisms, two regimes can be distinguished: the conventional regime and the mandatory regime. Conventional bargaining results from the direct negotiation between employers' and workers' representatives. A mandatory regime, on the other hand, does not result from direct bargaining between workers and employers, but is dictated by the Ministry of Employment.

[4] Most empirical research that distinguishes entry wages from wages of ongoing jobs focuses on their different behavior over the business cycle. Such studies show that wages of newly-hired workers are considerably more volatile than the wages of incumbent workers. However, since the number of workers in ongoing jobs is higher than the number of new hires, the aggregate wage invariably becomes rigid. These studies have highlighted the idea that the wage response to aggregate labor conditions differs considerably between workers in ongoing jobs and newly-hired workers. Carneiro et al. (2012) use matched employer-employee data for Portugal 1986-2005 and find that after controlling for both firm and worker heterogeneity, entry wages are much more procyclical than wages of ongoing jobs.

The systematic extension of industry-wide agreements by the Ministry of Employment is the most important mechanism shaping the formation of wages, indeed, even though by law the collective agreements achieved under the conventional regime are binding only for workers complying with the so-called double affiliation principle, *i.e.*, workers that are simultaneously members of the subscribing union(s) and that are employed by firms that are members of one of the subscribing employer associations. In the Portuguese case, the combination of these two dimensions would determine a very small coverage of collective agreements due to low union and employer associations' density rates. In such a scenario, most workers would have their employment relationships determined by individual agreements negotiated directly with their respective employers.

In this regard it is interesting to note that even though the agreements are binding only to workers who comply with the principle of double affiliation, there are no mechanisms in Portuguese law that oblige unions and employers to reveal their constituency. This legal conundrum has been resolved by various governments that resort to the mandatory regime by extending the collective agreements to all the firms in each sector using the so-called Extension Ordnance ("Portarias de Extens˜ao")[5]. This means that wage agreements reached by trade unions and employers' associations with even very low representation have a strong impact in setting wage floors.[6] Indeed, in any given year collective bargaining sets around 30,000 minimum wages that correspond to 30,000 job-titles (see Carneiro et al. (2014), Torres et al. (2013), and Martins (2014)).

This mechanism has helped to accentuate the discrepancy between, on the one hand, the low union density (around 10 percent according to Addison et al. (2017)) and, secondly, the high coverage rate of collective agreements (about 90 per cent). It is true that the existence of extension mechanisms may act as an incentive for membership of employer associations, so that they can more directly influence the outcome of negotiations. However from the workers' point of view incentives to become union members are reduced because the non-unionised workers would benefit from the same contractual conditions of their unionized colleagues without bearing the cost of the union fees.

Until 2004 – the year when the Labor Code entered into force – the number of extension ordnances was quite high. After a short-duration decline, this number increased again until seeing a drastic reduction from 2011 on in the context of the economic adjustment program, which initially froze the extensions and then made the criteria for their application more restrictive.

Most collective agreements are industry-wide, covering companies with very different sizes and economic conditions. Their contents tend to be general, setting minimum working conditions, especially the base monthly wage for each category of workers, overtime pay and the normal duration of work. Underlying the bargaining process, there is a mandatory minimum monthly wage that sets the floor for wage negotiations.[7] National legal minimum wages and pervasive wage floors set by collective bargaining coupled with the legal prohibition of nominal wage cuts (that survives since the 1950s) creates a *de facto* situation of extreme nominal wage rigidity.

In the context of the high inflation regime that characterized Portugal in the 1980s and 1990s, this restriction was not binding in real terms, as adjustments in real wages could be achieved by raising nominal wages at a rate below the inflation rate, or for firms paying wages above the corresponding new minimum, by reducing the wage drift. In such a setting, the higher the inflation rate the greater the leeway for manipulating the real wage. However, in the current lowinflation regime nominal wage rigidity becomes an active restriction. Indeed, in this environment employers' response on the wage margin is limited to the possibility of reducing the wage drift or going for the lowest nominal wage increase possible, ultimately freezing wages.

[5] Article 514 of the Portuguese labor code states that "a collective agreement [...] in force can be applied, entirely or partly, by an extension ordnance to employers and employees in the economic activity and profession considered in the collective agreement. The extension is possible after weighting the social and economic circumstances that may justify it, in particular the identity or economic social similarity of the cases in the extension and the underlying collective agreement."

[6] In 2012 a Government resolution stated that the extension would be possible only when the employers' subscribers to the agreements employ at least 50% of the workers of the relevant economic sector.

[7] Currently there is a single legal national minimum wage that applies to all workers. Workers formally classified as apprentices receive just 80% of the full rate. The national minimum wage is updated based on a proposal by the government, usually taking into account past and predicted inflation and after consulting the trade unions.

Hence, in a low-inflation regime negative shocks are expected to shift the employment distribution of nominal wage adjustment toward zero, the magnitude of real wage adjustment being conditional on the inflation rate. This is, in fact, what was observed during the last recession, in which the wage response was characterized as in the past by no (or limited) nominal negative variations (measured from base pay), but also (differently from the past) by a salient move toward zero in the distribution of wage variations, corresponding approximately to the expected inflation rate and accentuating even more the low distribution spread.[8]

3. Dataset

3.1. Personnel Tables (Quadros de Pessoal)

The data used in this paper come from a longitudinal matched employer-employee dataset known as the Personnel Tables (*Quadros de Pessoal*).[9] This unique dataset was created by the Portuguese Ministry of Employment and is constructed from a mandatory annual survey addressed to all firms with wage earners with headquarters in the mainland (Madeira and Azores are excluded). It has been conducted every year since 1982 with the exception of 1990 and 2001. The survey covers various firm and establishment characteristics, as well as a set of characteristics of the workforce. Being compulsory, it does not suffer from the non-response problems that often contaminate standard household and firm surveys. Furthermore, the survey covers almost all Portuguese employees, excluding only Public Administration.

The dataset includes information on the establishment (establishment identifier, location, industry, and employment), the firm (firm identifier, location, industry, legal form, ownership, year of start-up, employment, sales, and capital), and its workers (social security identifier, gender, age, education, skills, occupation, employment status, professional level, seniority, earnings, normal and overtime hours, time elapsed since the last promotion, and type of classification in the collective bargaining agreement).

3.2. Sample definition and general variables

Our sample covers the period from 1986 to 2013, excluding the years in which the Personnel Tables were discontinued (1990 and 2001). For the purposes of this paper a subset of variables was selected, certain new variables created, and some observations removed. The final set of variables retained for analysis is given in Appendix A. A number of general restrictions were placed on the data used throughout the paper. Given the specific purpose of our investigation (i.e. the impact of externally-set wage increases), the analysis excludes firms that apply firm-level agreements as well as contracts with less than 1000 workers over the entire period. In addition, the data exclude those individuals who were not working full time, who were aged less than 16 years and more than 65 years, who earned a nominal wage less than the legal minimum wage in each year or above the 99.9 percent quantile in each year, and who recorded errors in admission/birth dates, duplicate social security codes, or other errors in their social security codes.[10]

The unique characteristics of our dataset with detailed information about the job title structure within each collective wage agreement provide the means to calculate the bargained wage floor with a great level of accuracy. To ensure a minimum of representativeness, only job titles with at least 100 workers were considered. The bargained wage floor for a given job title - a key variable in our paper - is proxied by the modal base wage for each job title within each collective agreement. As shown in Cardoso and

[8] Dias et al. (2013) show that besides freezing the base wages, Portuguese firms make frequent use of a number of labor cost-cutting strategies, like freezing or cutting bonuses and other monetary or non-monetary benefits, slowing down or freezing the rate at which promotions are filled, or recruiting new employees at wages lower than those received by the employees that have left the firm. They provide evidence that the availability of these alternative labor-cost adjustment margins that firms can use in bad times makes dismissals a less likely outcome.

[9] In 2010, the *Quadros de Pessoal* was replaced *Relat´orio Unico´* that replicates its precursor except in one respect: it has information that allows to measure union density.

[10] Individuals employed outside of mainland Portugal and those in agriculture, hunting, forestry, and fishing (as well as misclassified industries) were also excluded.

Portugal (2005), the mode of the distribution of the base wage corresponds with remarkable accuracy to the contractual wage set by collective bargaining.

The analysis performed herein examines the impact of extensions upon workers' flows (hirings and separations), as well as upon the probability of firm exit (failure). Both hirings and separations were computed on the basis of social security identifiers: hirings correspond to the number of new social security identifiers reported by firms in each year (i.e. workers that are new in the database in a given year), and separations are the number of social security identifiers that were reported by firms in the previous year but not in the current year (i.e. workers that left the database in the current year). Both variables are divided by the number of workers in the previous year (hiring rate and separation rate). The variable "failure" that is used to gauge the impact of extensions on the probability of firm closure is a binary variable that is equal to 1 in year *t* for firms whose individual identifier left the database in that year and 0 otherwise.

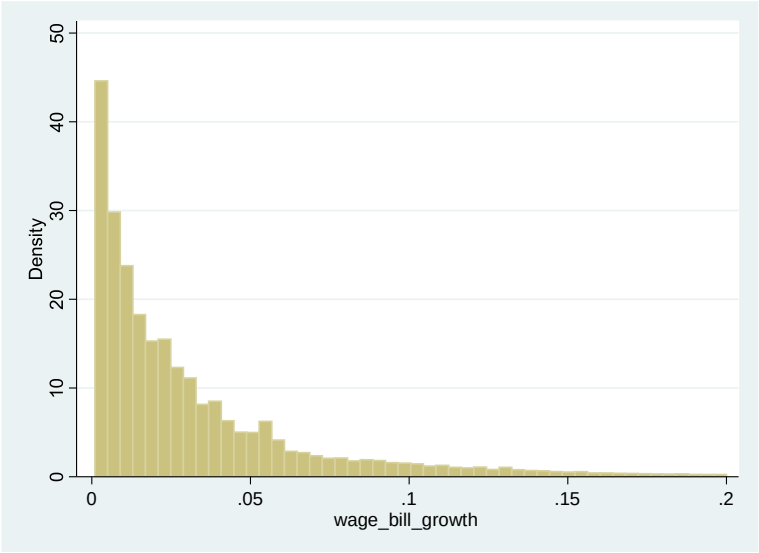

Figure 1: Distribution of the Implied Wage Bill Growth Weighted by the Number of Workers

4. The Impact of the Upward Nominal Wage Rigidity On Employment

In this section we look closely at the employment effects of increases in the wage floors for each specific job-title. For this purpose we compute for each firm, based on each job title within the firm, the increase in the wage bill necessary to comply with the new collective agreement. For this we took the job-title structure of the workforce of firm *i* at year *t*. Assuming that the same exact job-title structure prevails at year *t+1*, we obtain the increases in the base wage that would place those workers at the new wage floors, and aggregated all positive wage increases to define the *implied wage bill growth*. Figure 1 shows the distribution of the implied wage bill growth weighted by the number of workers. The average implied wage bill growth in the sample period is 2.4 percent.

In the computation of the *implied wage bill growth* it is worth to distinguish between two types of workers: workers who are already collecting a wage equal to or above the newly-agreed wage (in this case the contribution to the implied wage bill growth will be zero); and workers who are receiving a base wage that is below the new minimum (in this case, the contribution is, of course, the difference between the current base wage and the new wage floor). Within each firm both cases are possible. In general, the larger the fraction of workers that are paid below the new job title wage floor, the larger will be the implied wage bill growth. Collective agreements that settle higher wage increases will also, of course, engender higher wage bill increases.

The implied wage bill growth is thus our critical treatment variable. The identification of the employment effects of these externally imposed wage changes depends, of course, on the past wage policy of the firm, the job title structure of the workforce, and the size of the newly agreed wage floor increases. In this sense, this methodology is a straightforward generalization of the one suggested by Abowd et al. (2000) to study the impact of minimum wage increases in France and the USA. Portugal

and Cardoso (2006) exploit a similar strategy to analyze the impact of a subminimum wage hike on the workers' accession and separation rates.

To measure the effect of an increase in the wage bill implied by the updating of the wage floors settled by collective agreement on the hiring and separation rates, we specified a simple labor demand equation in first differences:

$$\Delta y_{ft} = \xi \Delta wb_{ft} + \beta log.age_{ft} + \lambda_t + \varepsilon_{ft} \quad (1)$$

where Δy_{ft} stands for the hiring rate or separation rate in firm f at time t. Δwb_{ft} represents the implied wage bill growth, $log.age_{ft}$ denotes the log of firm age, to account for the fact that older firms typically have lower hiring and separation rates, λ_t represents a set of time (yearly) effects, and ε_{ft} is a conventional error term.

The results shown in columns (1) and (3) of Table 1 suggest a strong impact on the separation rate resulting from externally driven changes in the wage bill of the firms. According to our estimates, a 10 percent (real) increase in the wage bill leads to an increase in the separation rate of 2.1 percentage points. The presence of firm's age reveals that older firms tend to be less

Table 1. The Impact of Increases in Bargained Wage Floors on Firms' Hirings and Separations OLS Estimates

	Dependent variables			
	Hiring rate		Separation rate	
	(1)	(2)	(3)	(4)
Implied wage bill growth	−0.049 (0.019)	−0.022 (0.002)	0.206 (0.020)	0.319 (0.002)
Log of firm age	−0.038 (0.002)	−0.034 (0.000)	−0.041 (0.002)	−0.031 (0.000)
Number of obs.	8,350,405		16,551,719	
Contract dummies	- YES		- YES	
Yearly dummies	YES YES		YES YES	

Robust standard errors in parentheses. Results are weighted by firms' size based on the number of employees. The "implied wage bill growth" for each firm results from the aggregation of the changes between the actual base wage at time t and the new wage floor set by the collective wage agreement for $t+1$ for all workers in the firm assuming that the job title structure remains unchanged. affected. The impact of exogenous changes in wages produced via changes in collective agreements on the hiring rate is negative but more modest (a 10 percent increase in the wage bill leads to a fall in the hiring rate of 0.5 percentage points).

The fact that firms operate in different sectors with distinct economic performances and are covered by dissimilar agreements is certainly a factor that potentially affects firms' hiring and firing decisions. A fully flexible way to consider this issue in the analysis is simply to include a full set of contract/year dummies, removing (filtering) contract heterogeneity and contract time

variation from the estimation. The equation to be estimated is now:

$$\Delta y_{ft} = \xi \Delta wb_{ft} + \beta log.age_{ft} + \lambda_{ct} + \varepsilon_{ft} \quad (2)$$

where λ_{ct} identifies the collective agreement ruling the bargained wages of firm f at time t.

Proceeding in this way, we obtain the results shown in columns (2) and (4) of Table 1. The coefficients on the implied wage bill growth suggest a strong impact on the net job creation rate resulting from externally driven changes in the wage bill. The impact on the hiring rate is now more modest than

before but the impact on the separation rate is significantly stronger: a 10 percent increase in the wage bill produced via changes in collective agreements increases the separation rate by 3.2 percentage points.

A frequently neglected dimension of the employment adjustment is its corresponding extensive margin, that is, the entry and exit of firms (Addison et al. (2014)). In the current exercise any attempt to guess the effect of collective bargaining on the entry rates of firms would be a "*tour de force*", despite the potential importance of such an inquiry. Nonetheless, our sampling plan allows us to estimate how externally driven wage increases impact the probability of firm exit. To this end we specified a simple probit regression model taking the same covariates as before.

The regression results on the determinants of the failure of firms are given in Table 2. The main thrust of the estimation is the indication that the estimate of the quasi-elasticity of labor demand through firm closure is equal to 0.22, meaning that a 10 percent increase in the wage bill generated by the increase in the bargained wage floor increases the probability of firm closure by 2.2 percentage points.

Table 2. The Impact of Increases in Bargained Wage Floors on the Probability of Firm Closure Probit Estimates

Yearly dummies	Dependent variable: Failure		
		Probit Estimates	Marginal Effects
	Implied wage bill growth	1.969 (0.075)	0.216 (0.008)
	Log of firm age	-0.234 (0.007)	-0.026 (0.001)
	Number of obs.	17,563,508	
	Yearly dummies	YES	

Robust standard errors in parentheses. "Failure" is a binary variable that is equal to 1 for firms whose individual identifier left the database and 0 otherwise. See notes to Table 1 for additional details.

5. The impact of external wages on hirings and separations of newly-hired workers

5.1. How important are external wages for the determination of wages of newly-hired workers?

So far we have focused on the wage behavior of workers that were assumed to stay in the same firm, that is, of (potential) job stayers. Given the nature of the exercise we neglected by construction the wage behavior of new hires. But as discussed above, the determinants of entry wages are critical at both the theoretical and the empirical levels. In this section we attempt to disentangle the internal from external drivers of the wages of newly-hired workers. Once we succeed distinguishing between firms with different degrees of externally and internally-driven entry wages, we should be able to unveil the link between external (internal) wages and job flows.

The importance of internal wages driving entry wages has a number of implications. First, by negotiating wages above the external option of the worker, firms are more likely to avoid worker turnover and retain those workers, thereby diminishing the number of worker separations.

Second, it may signify that firms more often than not choose to negotiate entry wages above the wage floors defined by the collective agreements. This may be due to fairness considerations or other strategic considerations (e.g., incentive contracting). In any case, such a finding would provide direct empirical evidence supporting the notion that the wages of new hires are partially determined by the prevailing wages of stayers, as hinted at in Bils et al. (2014).

Third, because a significant fraction of firms offer wages above the minimum defined at the bargaining table (typically sectoral), they may benefit from the wage cushion (Cardoso and Portugal (2005)) engendered by the difference between the actual wage paid and the bargained wage. Confronted with a negative shock in the product demand or in the costs of inputs, those firms are able to make wage adjustments unlike firms that are remunerating their workers at the established minimum. If this argument has some value, one should expect lower failure rates and less employment volatility among firms that are less constrained by external wages. On the other hand, if the bargaining power of the workers, that is, the union power, is strong enough, wage floors agreed through collective negotiations

may not leave space for firms to settle wages above the external wages. In this case, in which external wages are binding (as in, for example, Dolado et al. (1997) for unskilled workers) the wage cushion will be small and the firms may lack roomfor maneuver to successfully adjust to negative product demand shocks.

Finally, there is convincing empirical evidence showing that the wage policy of firms is notoriously heterogeneous. The fact that firm fixed effects account for a large fraction of the wage variation (Torres et al. (2013)) is a clear sign that firms often cannot be taken as wage takers. Webber (2013) argues forcefully that the labor supply elasticities faced by the firms are relatively low, indicating that firms enjoy significant monopsony power (Manning (2003)). If, indeed, monopsony power plays an important role, it should influence the relative strength of internal and external factors in the determination of wages.

To better understand the nexus between entry wages and employment adjustments, we first provide a measure of the importance of inside and outside wages to next investigate, as before, the impact of externally driven wages on job flows. The exercise is restricted to the newly-hired workers, i.e. workers with a job tenure of less than 12 months. Furthermore, the analysis is restricted to those cases where for each newly-hired worker there is at least one worker in the same firm and job title but with a job tenure of more than 12 months. A minimum of 10 hirings over the entire period is also imposed as a threshold for a firm to be included in the sample. In order to disentangle the internal from the external drivers of the wages of newly-hired workers, for each newly-hired worker in a particular firm we compute an *internal wage* and an *external wage*. The latter is simply the bargained wage floor that corresponds to the job title of the new hire in each year, whereas the *internal wage* is the modal base wage of all ongoing workers in the same job title, firm and year.

The way we measure the relative importance of internal and external wages driving the wages of new hires is simple but unconventional. In essence, what we do is run a regression of the entry wage on the internal and external wages as well as on a set of time dummies. Because we need to distinguish the wage policy of the firms, we allow the regression coefficients on the two wage regressors to change from one firm to another. In other words, the model we wish to estimate relates the entry wages of workers to the "internal" and "external" wages in the same job title. Specifically, our model consists of:

$$wifjt = wfjtI\ \beta fI + wjto\ \beta fo + \alpha f + \lambda t + \varepsilon ifjt \tag{3}$$

where w_{ifjt} is the (log of) entry wage of worker i in firm f, in job j at time t, w_{fjt}^{I} is the corresponding "internal" wage (the modal wage of ongoing workers in the same job title, firm and year) and w_{fjt}^{o} is the "external" wage (the bargained wage floor for the same job title and year). The α_f is a standard firm fixed-effect that accounts for unique firm (or industry) characteristics that affect all entry wages alike (firm internal organization, higher productivity, etc.) and λ_t is a time fixed effect. Note that the β coefficients in the above equation are specific to each firm, reflecting the fact that firms place different weights on "internal" and "external" wages when setting entry level wages. Direct estimation of the above model cannot be implemented using the standard procedure to deal with a model with one fixed effect because the firm fixed effect is interacted withe "internal" and the "external" wage. In Appendix B we detail the procedure to find the exact least squares solution for the parameters of the above model.

The regression coefficients of the (internal and external) wage variables can straightforwardly be interpreted as the weights attached to such drivers in the formation of starting wages.[11] Figures 2 and 3 show the distribution of the estimates of the coefficients associated with the interaction of the firm fixed effect and the internal and external wages, and Table 3 reports how the mean of the distribution for the external interacted wage fixed effect varies according to gender, sector, and worker age.

Results in Table 3 show that firm internal wage structure is relatively more important for the determination of wages of new workers: it accounts on average for 51 percent of the determination of base wages of newly-hired workers. Using survey data for 15 European countries, Galuscak et al. (2012) provide evidence that also suggests that the internal pay structure is more important for determining

[11] To mitigate the unavoidable sampling error that results from firms with very low recruitments, we excluded weights below zero and above one.

hiring wages than the external wage constraints. The importance attached to the role of internal wages seems to vindicate the notion that entry wages are largely driven by the wages of job stayers, as forcefully argued by Bils et al. (2014). More generally, it is also consistent with the hysteresis narrative of Blanchard and Summers (1987). However, the importance of externally-set wages is far from being negligible, as it accounts on average for 31 percent. Externally-set wages seem to be much more important in financial services and less so in trade.

Table 3. The Determinants of Wages of Newly-Hired Workers Internal Vs. External Factors

	Internal wage	External wage	Number of recruitments
Full sample	0.512	0.306	2,949,529
Men	0.517	0.307	1,764,746
Women	0.504	0.304	1,184,783
Manufacturing	0.537	0.322	754,383
Energy	0.480	0.289	4,156
Construction	0.548	0.337	444,735
Trade	0.556	0.262	508,864
Non-financial services	0.463	0.297	1,155,404
Financial services	0.484	0.407	66,073
Workers older than 30	0.511	0.304	1,431,489
Workers under the age of 30	0.513	0.307	1,518,040

The "external wage" for a given newly-hired worker is the bargained wage floor for the corresponding job title and year, whereas the "internal wage" is the modal base wage of all ongoing workers in the same job title, firm and year. In both cases the values are expressed in logarithms.

The sample excludes firms that apply firm-level collective agreements.
Observations: 2,949,529 newly hired workers.

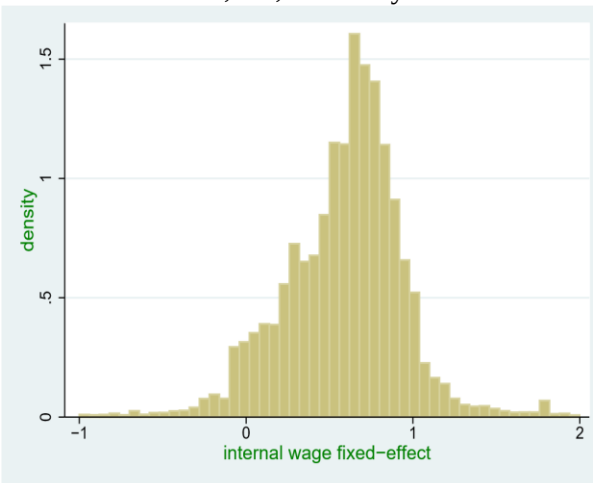

Figure 2: Distribution of the internal wage fixed-effect (weighted by the number of recruitments)

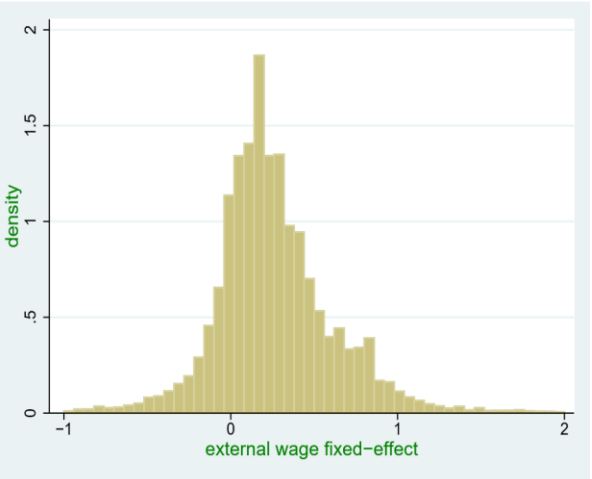

Figure 3: Distribution of the external wage fixed-effect (weighted by the number of recruitments)

5.2 How externally-set wages impact on firms' hirings and separations of newly-hired workers

The evidence that internal wages are good predictors of the wages of new hires should not lead us to conclude that external wage constraints, such as those defined by wage floors, do not play a role. To shed some light on this issue we estimate a regression model on the determinants of job flows. In particular, we specify the following equation:

$$\Delta y_{ft} = \theta ew_f + \beta log.age + \lambda_t + \varepsilon_{ft} \quad (4)$$

where ew_f is the estimated external wage weight for firm f obtained from equation 3, that is $\hat{\beta}_f^o$,

Δy_{ft} stands for the hiring rate or separation rate in firm f at time t, λ_t represents a set of time (yearly) effects, and ε_{ft} is a conventional error term.

The estimation results are shown in columns (1) and (3) of Table 4. Here the critical parameter is the regression coefficient for the external wage variable: a 10 percent increase in the external wage weight generates a 0.24 percentage point decrease in the hiring rate. Interestingly, the

Table 4. The Impact of Externally Set Wages On Firms' Hirings and Separations of Newly-Hired Workers OLS/IV estimates

Dependent Variables				
	Hiring Rate		Separation Rate	
	(1)	(2)	(3)	(4)
External wage weight	−0.024 (0.002)	-	0.005 (0.002)	-
Estimated external wage weight	-	−0.054 (0.008)	-	0.219 (0.007)
Log of firm age	−0.115 (0.001)	−0.123 (0.001)	−0.063 (0.001)	−0.064 (0.001)
Number of obs.	357,564	371,809	345,671	357,564
Method	OLS	IV	OLS	IV
Yearly dummies	YES	YES	YES	YES

Notes: Robust standard errors in parentheses. Results are weighted by the number of recruitments in each firm.

The sample excludes firms that apply firm-level collective agreements. The "external wage weight" measures the contribution of external wages (see definitions above) to the formation of entry wages. To mitigate the sampling error that results from firms with a low number recruitments, we excluded firms with weights below zero and above one.

Table 5. The Impact of Externally Set Wages on the Probability of Failure

Dependent variable: failure				
	Hiring Rate		Separation Rate	
	(1)	(2)	(3)	(4)
external wage weight	0.152 (0.010)	-	0.012 (0.001)	-
estimated external wage weight	-	1.003 (0.071)		0.077 (0.005)
Log of firm age	0.083 (0.004)	-	0.090 (0.005)	-
number of firms	385,645	358,071	385,645	358,071
yearly dummies	YES			

Notes: Robust standard errors in parentheses.

The sample excludes firms that apply firm-level collective agreements. "Failure" is a binary variable that is equal to 1 for firms whose individual identifier left the database and 0 otherwise. See notes to Table 4 for additional details. impact on the separation rate is still positive but much more modest (0.5 percentage points).

When we turn our attention to the effect of external wages on the failure rate, we find that firms whose wage policies are more driven by external wages face higher probabilities of failure, but this effect is modest. A 10 percent increase in the external wage weight is associated with a 1.2 percentage point increase in the probability of firm closure (Table 5).

A thorny problem that emerges from our approach comes directly from the assumption that the wage policy of the firm is exogenous. The notion that the wage policy of the firm regarding the definition of entry wages is independent from the error term is clearly questionable. Whereas the definition of the external wages is largely exogenous to the firm, the decision to pay above the external wage floors can hardly be argued to be exogenous. Fortunately we can rely on the information regarding the identification of each collective agreement that binds each firm to construct a valid instrument. In other words, we shall replace the external weight variable by its estimated value from an auxiliary regression that simply regresses the external weight on a set of dummy variables identifying the ruling wage agreement. The estimating equation is now:

$$\Delta y_{ft} = \theta \hat{ew}_f + \beta log.age + \lambda_t + \varepsilon_{ft} \quad (5)$$

where $\hat{ew}_f$ is the predicted estimated external wage weight for firm f obtained from an auxiliary regression that regresses the external wage weight on a set of dummy variables identifying the ruling wage agreement.

Columns 2 and 4 of Tables 4 and 5 show the results from this two-stage approach. The most notable difference *vis-`a-vis* the previous approach is the sizable increase in the separation rate equation: a 10 percent increase in the external wage weight generates a 2.2 percentage point increase in the separation rate. The impact on the hiring rate is also larger than before: a 10 percent increase in the external wage weight generates a 0.5 percentage point decrease in the hiring rate. More generally, these results clearly indicate that the internal and external wage weights contain information that is relevant for helping us to predict employment outcomes. The impact of the external wage weight on firms' failure is greater than in the previous formulation: a 10 percent increase in the external wage weight is associated with a 0.8 percentage point increase in the probability of firm closure (columns 2 and 4 of Table 5).

6. Conclusions

In Portugal collective agreements rule the wage floors of around 30,000 job titles. Given the widespread use of extension mechanisms ("*portarias de extens˜ao*"), the coverage of those "minimum wages" is close to 90 percent of all wage-earners in the private sector. This occurs despite the fact that the union density rates are very low.

This means that in the Portuguese labor market firms confront not only severe downward nominal wage rigidity because nominal wage cuts are forbidden, but also because of what we tentatively call "upward nominal wage rigidity". This phenomenon is similar in nature to the frictions generated by nationwide mandatory minimum wages, in the sense that many firms are forced to increase their wages to comply with the updated wage agreements.

In this paper we explore an unusually rich matched employer-employee data set, one that provides for each worker the identification of the collective agreement (and the corresponding job title) binding the formation of base wages. In this setup we estimate for each firm the wage bill growth that is implied by the signing of a new contract. We then present evidence showing that the firms that are more strongly affected by the change in the bargained wage floors decrease their hiring rates and, more importantly, significantly increase their separation rates, leading to fairly sizeable higher job destruction rates. Furthermore, higher-wage impacts are also associated with greater failure rates of firms.

Focusing on the stock of employed workers, we observe the impact of externally driven wage increases being largely concentrated on (higher) worker separations. This is also true if we restrict the analysis to the newly-hired. Indeed, when we look at the determinants of the wages of new hires, what we see is that the role of external wages is more intense among (higher) worker separations.

The empirical results collected in the current essay call into question the functionality of the architecture of the Portuguese wage setting system. In particular, it raises very serious concerns with respect to the widespread use of extension mechanisms. Also, the limited role played by the workers councils in the Portuguese legal framework seriously hinders any moves toward a decentralized (firm based) system of wage negotiations (Martins (2015)). Furthermore, given the low representativeness of the unions and of the employer associations, it may well be possible that higher wage firms and higher wage workers engage in a strategic behavior, seeking to avoid the competition of lower wage firms and lower wage workers.

In this framework it seems to be justified to limit the extension of wage agreements to criteria based on the representativeness of the negotiation partners, as recently approved in Portugal. The praised German experience (Dustmann et al. (2014)) favoring opting out clauses and decentralized mechanisms in which worker councils play an important role should also be given serious consideration, even though the governance structure of the Portuguese system of industrial relations is, unlike the German one, firmly rooted in legislation and overwhelmingly governed by the political process.

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Appendix A - Description of variables

Table 6: Description of the variables used in the paper

Variables	Description
Hiring rate	number of new social security identifiers reported by firms in each year divided by the number of workers in the previous year
Separation rate	number of social security identifiers that were reported by firms in the previous year but not in the current year divided by the number of workers in the previous year
Failure	binary variable that is equal to 1 in a given year t for firms whose individual identifier left the database in that year and 0 otherwise
Implied wage	sum for each firm of the changes between the new wage floor set by
bill growth	the collective wage agreement for t+1 and the current base wage at time t for all workers, assuming that the job title structure remains unchanged
External wage	contribution of external wages to the formation of entry wages; it is the
weight	firm-level coefficient of the external wage that results from a model that regresses entry wages on the internal and external wages in the same job title
External wage	predicted estimated external wage weight for each firm obtained from
weight estimate	an auxiliary regression that regresses the external wage weight on a set of dummy variables identifying the ruling wage agreement
Firm age	number of years since start-up expressed in logs

Appendix B - Least squares solution to the model presented in Section 5.1

The estimation of the model shown in Section 5 cannot be implemented using the standard procedure to deal with a model with one fixed effect. This is because the number of β coefficients that would need to be estimated (2 × 15,787) is too large to allow for the application of the

within estimator. However, it is still possible to find the exact least squares solution to the model (equation 3).

The trick is to estimate the model in two steps making use of the Frisch-Waugh-Lovell (FWL) theorem and the fact that for a subset of variables the firm-level observations are independent. In the first step we expurgate from w_{ifjt} and x_t the effect of the other variables in the model. This amounts to calculating the residual of regressions on w_{fjt}^I and w_{jt}^o for each individual firm. Then we regress the residual of w_{ifjt} on the residual of the x_t and obtain bγ, the OLS estimate of γ. To obtain the OLS estimates of β_f^I, β_f^o and α_f we need only to regress $w_{ifjt} - x_t\widehat{\gamma}$ on w_{fjt}^I and w_{jt}^o again for each individual firm. The constant term in firm level regressions are the OLS estimates of the α_f, and the standard errors obtained by this procedure are correct as long as we adjust the degrees of freedom.[12]

[12] The Stata user-written program *regintfe* programmed by one of the authors implements this method. The code is available in the Statistical Software Components (SSC) Archive.

YIELD CURVE DYNAMICS AND FISCAL POLICY SHOCKS AT THE LOWER BOUND

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Abstract:

The paper investigates responses of the U.S. Treasury yield curve to fiscal policy shocks. More specifically, using a shadow-rate affine term structure model and a vector autoregression model, we evaluate, how shocks to the government spending and shocks to the fiscal policy uncertainty influence the yield curve. In the analysis, we particularly focus on the propagation of the shocks through the yield components: the risk-neutral yield and the term premium. First, we show that shocks to the government spending move the yields upwards. This can be explained partly by an impact of the shock on the risk-neutral yields, raised by the aggregate demand shifts, and partly by an increase of yields because of an increased demand for government funding. Second, shocks to the fiscal policy uncertainty move the risk-neutral yields downwards, as the uncertainty decreases probability of future monetary policy tightening. At the same time, the shocks to the uncertainty directly increase the term premium of the long yields. In case of the short to medium yields, the effect on the term premium is negligible, as the flight-to-quality behavior neutralizes the term premium growth. Third, we evaluate, to which extent the lower bound of the yields influences the response of yields to the shocks. We show that the magnitude of the responses is significantly influenced by a distance of yields to the lower bound. Economically, this can be explained by an effect of the unconventional monetary policies at the lower bound. In a reaction to a shock, these policies are constrained or loosened first, so that the shocks are not propagated to a change of the monetary policy rates. Technically, the option effect, which is the core building block of the shadow-rate model, absorbs a significant share of the shock impact.
Keywords: Interest rate, Fiscal policy, Affine model, Shadow rate, Policy uncertainty

MEASURING FINANCIAL SYSTEMIC STRESS FOR TURKEY: A SEARCH FOR THE BEST COMPOSITE INDICATOR

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Abstract

In this study, we aim to construct a single financial stress indicator (FSI) for Turkey adopting weekly data between April 2005 and December 2016. To do so, we compose 15 different FSIs using 14 variables that will represent five different markets, i.e. money market, bond market, foreign exchange market, equity market and banking sector. We aggregate these five different markets using variety of techniques, including principal component analysis (PCA), basic portfolio theory, variance equal weights and Bayesian dynamic factor model. We compare 15 different FSIs on the basis of their relation to and forecasting power of different variables such as the growth rate of industrial production, OECD business condition index and OECD composite leading indicator for Turkey. Our results suggest that there does not exist a simple best indicator for Turkey that will measure the financial systemic stress. Some indicators offer a good forecasting power for economic growth while others have a stronger correlation with the systemic risk. However, we observe that all the 15 proposed FSIs successfully indicate the tension periods regardless of the model choice. We offer a final FSI for Turkey conducting a model averaging method via a rolling-correlation based weighting scheme to benefit from the information content of all the FSIs.
Keywords: composite indicator of systemic stress; aggregation methods; Bayesian dynamic factor model; portfolio theory; model averaging.

1 Introduction

The burst of the 2008 global financial crisis has reignited interest toward systemic stress and early warning indicators. The financial stress that culminated from uncertainties in global financial markets and rippled through the real economy unravels the need for effective early warning systems. Despite its origin in advanced economies, the financial systemic stress has spillover effects without discriminating sound economies. While most of emerging economies remained relatively stable during the 2008 global financial crisis and the global economic downturn afterwards, monitoring systemic stress via early warning practices and FSIs became indispensable tools for economic policymaking.

Detecting and quantifying financial stress and its systemic risk conduits have been one of the main concerns for regulatory authorities especially after the 2008 global financial crisis. The intensified search for viable early warning systems is justified by the length and depth of the recessions that are followed by financial stress. As Claessens et al. (2012) and Claessens et al. (2010) empirically find, the recessions associated with financial disruptions are often deeper and more destructive. Financial stress is generally coupled with reduced wealth, constrained credit and reduction in firm's collateral. Borio (2014) argues that banking systems do not only provide real resources but also change the purchasing power and have a direct hit on real economy. During recessions coinciding with the episodes of busts, macroeconomy usually displays sharper downturns due partly to negative wealth effects, reduced credit and widespread uncertainties.

Empirical investigation on financial crises rests generally on the development of tools that enable their precise dating and quantification. Binary codification is generally employed for dating and is based on subjective evaluation. However, as argued by Danninger et al. (2009), binary codification does not

provide a measure of the intensity of stress and ignore the ambiguity of the "crisis" definition, e.g. the existence of a pseudo-crisis, when it is very close to being defined as a crisis but is not considered as a one actually. Foreseeing a crisis prior to a tolerable time period is a success measure for early warning systems. It is however of at least equal importance to have a measure of "stress" that may result in a financial crisis. In that case, just a binary indicator defining the time boundaries of a possible crisis may not be adequate, particularly for the policymaker who is mandated to formulate effective policies during the build-up of a possible crisis. To evaluate financial stress, the formulation of stress episodes is critically important too. A metric that solely accounts for banking, currency or debt market may not be appropriate, as the interaction among different segments of financial markets may intensify and lead to a systemic crisis afterwards. The development of stress indicators for various segments of financial markets and aggregating them into a composite indicator enable one to monitor the propagation of a crisis and its channels. In that framework, an FSI will be an invaluable tool to measure and monitor current state of financial stress and summarize it as a continuous time series.[1]

Although FSIs have an objective to foresee stress periods timely and accurately, data selection, aggregation, and calibration schemes of each indicator vary substantially. Most of the studies conducted on FSIs develop high frequency indicators that utilize market data , while some employ a mixed data set and a few studies use balance sheet data.[2] Considering the aggregation schemes, the most popular scheme is equal-variance weights as it is easy to implement and comprehend.[3] Some others consider factor analysis or PCA that relies on extracting a common component among a number of variables. A recent approach employed by Holl´o et al. (2012) focuses on the correlations between various financial segments as indicating the likelihood of a systemic crisis, since, by definition, intensified interactions create greater damage on the real-economy. The mentioned approaches to FSIs are relatively easy to implement and comment, however, some studies quantify financial stress via more complex and sophisticated approaches like dynamic factor analysis.[4]

The endeavors of detecting a financial crisis and monitoring its build-up phase in a timely manner prompted academicians and policymakers to create FSIs for various countries. Several papers including Lall et al. (2009), Blix Grimaldi (2010) and Melvin and Taylor (2009) investigate FSIs for a set of advanced economies, and several others like Danninger et al. (2009) and Park and Mercado (2014) examine the transmission channels of financial stress between advanced and emerging economies. Although there exist many single country studies, most of them primarily focus on advanced economies.[5] Notable exceptions are those of Morales and Estrada (2010) and Cevik et al. (2013) who study Colombia and Turkey, respectively.[6]

As emerging economies are rapidly integrating into global and regional markets, the crossborder effects of national crises are getting more destructive. The transmission of financial crises is often amplified by the co-movements in asset prices and capital flows. The economies which share similar fundamentals and have strong macroeconomic interdependence are more affected from peer country crises. Herding behaviors also exacerbate the crisis effects as international investors present withdrawals without assessing the fundamentals of peer countries. In the past 30 years, the Turkish economy experienced several episodes of financial stress, some having national characteristics while others resulting from spillover effects of global or regional crises. The crises in 1994 and 2001 have been the major ones that led to successful restructuring of the economy. The successful implementation of various reforms has geared up the economy, and the country recovered from the crisis while achieving significant growth until the 2008 global financial crisis. However, the country has several linkages with its peer emerging countries and is a candidate country of the European Union. The instance of a possible financial stress in Turkey is also a credible threat for these countries. We thus argue that monitoring and foreseeing financial stress in Turkey is not a national regulatory concern solely but has potential cross-country impacts.

[1] As Holl´o et al. (2012) argue, it would be unrealistic to expect that such a concise indicator can sufficiently characterize a very complex systemic risk, yet FSIs may also improve the statistical power on the information content of macroprudential early warning models.

[2] See Lall et al. (2009), Holl´o et al. (2012), and Illing and Liu (2006) employing high frequency data. Hanschel and Monnin (2005) employ mixed data and (Morales and Estrada, 2010) use balance sheet data.

[3] See Lall et al. (2009), Hanschel and Monnin (2005) and Elekdag et al. (2010) for details.

[4] See Brave and Butters (2010) and Brave and Butters (2011).

[5] See Illing and Liu (2006) Hatzius et al. (2010) and Hanschel and Monnin (2005).

[6] See Kilimci et al. (2015) and Camlica and Gunes (2016), which are two other studies on stress indicators for Turkey.

This paper introduces an FSI for the Turkish financial system. We discuss various aggregation approaches to compute FSIs including equal-weighting, PCA, basic portfolio theory and Bayesian dynamic factor model, and offer a single FSI averaging all different indicators via model averaging. Although there is some degree of disagreements between the variants of FSIs in terms of their forecasting power, all the variables quite effectively point to similar tension periods during the sample period. This result motivate us to benefit from the information content of all the indicators via a model averaging scheme. Therefore, we introduce a final FSI for Turkey by adopting a weighting scheme that computes rolling correlations between economic activity (industrial production index) and 15 different FSIs. This model averaging scheme, which employs weighting with respect to the industrial production allows us to include the information content of 15 different FSIs in proportion to its correlation with economic activity in a dynamic structure and increased accuracy.

The present paper is not the first one to discuss FSI for Turkey, but as far as we know, it is the first in the literature that discusses many FSIs and obtain a single FSI via model averaging. Although the papers in the literature generally propose a few methodologies to compute FSIs, we observe that the proposed methodologies may not overlap in quantifying the financial stress. Aggregating various FSIs addresses this caveat and proposes that aggregating various FSIs is an optimal choice to use an FSI as a monitoring tool. What is more encouraging, we find that the final FSI for Turkey successfully indicates well–accepted tension periods.

This paper proceeds as follows: Section 2 introduces the variables and related transformation and aggregation techniques in computing the FSIs. Section 3 discusses the choice of FSIs by evaluating the performance of indicators in predicting economic activity and presents a model averaging scheme based on weights with respect to industrial production index to compute a final FSI. The last section concludes.

2 Selection of Markets and Market Specific Variables

The construction of an FSI involves four specific steps. The first step is the inclusion of financial markets that will be represented by the composite indicators. The second step is the selection of variables that should well speak for the specifics of the Turkish economy. The third step is the transformation and scaling of raw variables that will be included into the formation of FSI. Finally, the last step will be related to the aggregation of all the transformed variables into a composite indicator. The first two steps are determined mostly by the characteristics of the Turkish economy, data availability and the literature on which these kind of composite indicators are based upon. The last two steps, i.e. transformation of the variables and aggregation of the FSI are related to available methodologies employed in the literature. In this paper, we select a wide range of transformation and aggregation techniques to construct a variety of FSIs and obtain a final FSI via model averaging, which represents the financial stress of the Turkish economy.

2.1 Financial Markets and Data

There does not exist an agreement on the number of markets to be represented or the number of variables to be added into each financial market. Yet, different researchers choose markets and variables that they believe reflect important aspects of the financial markets.[7] The markets which represent the economy are meticulously chosen to include economic and financial fundamentals of the country, i.e. yields, risk premiums, liquidity premium, stock and bond market indicators, exchange rate markets, and volatilities related to all these markets. The majority of the previous literature that measures financial stress employ five different markets, i.e. the money market, the bond market, the foreign exchange market, the banking sector and the equity market, not necessarily including all at the same time. Also, markets considered for a composite indicator should include stressful events that will create a fragility for the financial environment of the country that is studied.

In this study, the selection of the markets and variables is closely related to the systemic stress. There is also a trade-off between the candidate variables that will join the composite indicator. As discussed in Kliesen et al. (2012), composite indicators with longer samples could be constructed using stock prices, exchange rates and interest rates on Treasury bonds. The advantage of using long samples is

[7] See Kliesen et al. (2012) for a detailed survey of different composite indicators.

related to testing the performance of constructed composite indicator over the couple of business cycles to observe its relationship with the macroeconomy. By contrast, using newer indicators like credit default swap spreads or the LIBOR might limit the span of the composite indicator, but sometimes newer measures might be better indicators of financial conditions especially after the 2008 global financial crisis. Another trade-off about the data is related to the frequency of the final composite indicator, i.e. the indicator can be monthly, weekly or daily. Using a high-frequency data has an advantage in real-time analysis and decision-making but high-frequency data can be very volatile and may give inaccurate signals.

Table 1. Market Specific Stress Indicators Included in FSI

Variable	**Sector**	**Data start date**	**Data end day**
Volatility of the 3 month LIBOR rate	money market	May 2005	December 2016
TED-spread	money market	April 2005	December 2016
Volatility of the benchmark bond index	bond market	May 2005	December 2016
EMBI+ sovereign spread	bond market	April 2005	December 2016
Volatility of the USD/TRY	foreign exchange market	May 2005	December 2016
CMAX of the USD/TRY	foreign exchange market	April 2006	December 2016
Volatility of the EUR/TRY	foreign exchange market	May 2005	December 2016
CMAX of the EUR/TRY	foreign exchange market	April 2006	December 2016
Volatility of the BIST100 equity index	equity market	May 2005	December 2016
CMAX of the BIST100 equity index	equity market	April 2006	December 2016
Correlation of the benchmark bond index and the BIST100 equity index	equity market	May 2005	December 2016
Volatility of the XBANK banking sector equity index	banking	May 2005	December 2016
CMAX of the XBANK banking sector equity index	banking	April 2006	December 2016
Banking sector beta	banking	May 2005	December 2016

Table 1 presents the data that we choose to represent five different markets based on data availability and their relations with the real economy. As the composite indicator concerns the systemic risk, the employed variables should be related in some way to the dynamics of the real economy. Therefore, we checked the correlation of the variables to be included in the analysis with the monthly industrial production indicator to see whether they have a relative high correlation. The industrial production index is better than many other indicators, e.g. GDP, in showing high frequency economic activity. In line with the discussion presented above, we decided to include 14 different variables that represent five different markets to compute the composite indicator. The closest approach to our data selection building blocks of FSI is the financial stress index of Huotari (2015). All the data employed in this study is weekly data collected from Bloomberg.

2.1.1 Money market

The money market is the primary source of liquidity among financial markets. The inclusion of variables related to the money market will enhance the ability of the composite indicator to identify financial stresses. In this respect, we include two variables that will represent the money market of the Turkish economy, i.e. volatility of the 3 month LIBOR rate and TED-spread. These two variables will capture the flight to quality, flight to liquidity, and uncertainty about macroeconomic fundamentals. Our whole dataset is restricted by the availability of LIBOR rate as it starts from 2005.

2.1.2 Bond market

The degree of uncertainty in the bond market and the sovereign debt risk are represented by the volatility of a benchmark bond index for Turkey and EMBI+ sovereign spread. The volatility of the benchmark bond index will capture the overall country risk, whereas the EMBI+ sovereign spread also reflects the overall country risk premium as it roughly reflects a country's creditworthiness. As argued by Cevik et al. (2013), short term capital flows that are driven by investors' risk perceptions are poised to be a useful indicator during financial stresses in developing countries. Both Illing and Liu (2006) and Park and Mercado (2014) define the debt crisis as the inability of sovereign nations or the private sector to service its foreign debt. The earlier literature on debt crises deals with a group of emerging economies that were exposed to severe external indebtedness in the early 1980s. Therefore, the selected indicators are capable of revealing the tension in the debt markets as they generally show the spread between risky and risk-free bond yields.

2.1.3 Equity market

Stress in the equity market impairs the availability of funds to firms as well as returns to investors, impinging both on the supply and the demand dynamics of the real economy. More severely, it spreads easily to the rest of the financial system and is often the trigger of financial crises. Most of the studies in the literature define equity crisis as a sharp decline in the overall stock price index. The decline can be indicative of greater expected loss, higher dispersion of probable loss (higher risk), or increased uncertainty about the return of firms. Patel and Sarkar (1998) identify periods of significant decline in 8 developed countries and 14 emerging market countries using the ratio of the regional equity index level at time *t* to the maximum regional index level for the period up to time *t* and defined this ratio as $CMAX_t$.[8] We include three different variables to our analysis to capture the abnormalities in the equity market. We include the volatility of the Borsa Istanbul (BIST100) equity index, $CMAX_t$ of the BIST100 equity index and lastly the correlation between the benchmark bond index and the BIST100 equity index. The correlation will serve as a prominent measure for flight to quality, because stocks are usually viewed by investors as much riskier than government bonds. Therefore, the opposite movement of the two asset classes will represent periods of financial stress.[9]

2.1.4 Foreign exchange market

The movements in the TL/USD and the TL/EUR exchange rates are the very important benchmarks for both the Turkey's financial sector and its real economy. The Euro Area is the largest trading partner of Turkey, whereas the significant portion of foreign trade activity take place in US dollars. Moreover, many Turkish banks and large enterprises are increasingly financing themselves from international debt markets.[10] In this respect, higher volatility in the exchange rates will also add to systemic stress. As discussed by Illing and Liu (2006), in a fixed exchange rate regime, losses in foreign exchange reserves and increases in interest rates often cause financial stress. For a floating currency, like the TL, both the depreciation of the currency and unexpected volatility may signal stress in the foreign exchange markets. Thus, both the volatility and the depreciation are taken into consideration for the foreign exchange market. In this framework, we include four different variables related to foreign exchange market to compute FSI. These are: volatility of the TL/USD, volatility of the TL/EUR and $CMAX_t$ for these two exchange rates.

[8] $CMAX_t$ measure is a hybrid volatility-loss measure and used extensively in the financial stress indicator literature and can be defined by $CMAX_t = \frac{y_t}{max[y \in (y_{t-j} | j=0,1,\ldots,T)]'}$, where y_t is the equity index.

[9] The stock bond correlation is calculated over rolling three month periods.

[10] According to Financial Stability Report 2016 of the Central Bank of the Republic of Turkey, of approximately 27 thousand firms with FX loan balances, 100 thousand firms with FX liabilities of over 100 million TL hold 75 percent of total FX debt.

2.1.5 Banking sector

Market-driven data for the banking sector reflects expectations toward the prospects of the banking sector. Since the banking sector is a primary component of the financial system in Turkey, a composite index that will reflect financial stress should definitely include a measure that captures the stress in the banking sector. We will use the most common three variables employed within the FSI literature that represent banking stress. The first variable is the volatility of the banking sector equity index (XBANK). The second variable will be the $CMAX_t$ of the XBANK. Lastly, we use banking sectors' β. This measure involves the ratio of bank share prices to total share prices. It provides a stationary measure of relative equity-return volatility and isolates banking sector specific shocks. Indeed, β is simply the linear regression coefficient of XBANK return on BIST100. If β is greater than one, then the banking sector is relatively risky than the overall market.[11]

2.2 Transformation of raw data

The individual variables, as defined in detail above, should be transformed before we combine them as a composite indicator. We employ two basic transformations in this paper. The first transformation is related to scaling of each raw variable before we aggregate them with different methods to get a single composite indicator. The second transformation of the raw data is related to obtaining the volatilities and correlations.

2.2.1 Scaling raw data

Before aggregating the raw data, we need to transform them on a common scale in order to make them comparable.[12] We use two different scaling methods to scale the raw indicators and convert them into a common unit. The most common and preferred conversion method, due to its simplicity and parsimony, is standardizing each variable, which is usually done by subtracting its sample mean and dividing by its standard deviation.[13] With this approach, fluctuations across variables are on the same scale. It is assumed that the raw data is distributed normal when employing this type of scaling. The main drawback of this approach is thus the normality assumption, as it is kind of a common knowledge that high frequency financial data has fat tails. Another popular approach to scale the raw variables is standardization based on each indicator's empirical cumulative density function (CDF).[14] In this approach, raw stress indicators are normalized by transforming the values of each series into the corresponding value of their empirical CDF. This method is employed by Holl´o et al. (2012) in the literature.[15]

2.2.2 Measures of volatility

We use three different measures for volatility. The simplest and the most common measure to illustrate the time-varying movement of the variance is the realized volatility. Realized volatility is calculated as the square root of the monthly sum of squared weekly log returns. Second volatility

[11] $\beta = \frac{\mathrm{cov}(\mathrm{return}_{\mathrm{BIST100}}\mathrm{return}_{\mathrm{XBANK}})}{\mathrm{var}(\mathrm{return}_{\mathrm{BIST100}})}$

[12] Some aggregation methods does not require the data to be scaled. For example non-Gaussian dynamic factor model do not require the data to be scaled as they are clear from the normality assumption.

[13] Given that y_t is the raw data, then the standardization can be defined as $\frac{y_t - y_\mu}{\sigma y_t}$

[14] The difference between the two types of standardization can be visually seen in Appendix A for only one variable,i.e. TED-spread, we include into the composite inde

[15] Empirical CDF transformation is given by: $z_t = \begin{cases} \frac{r}{t} \text{ for } y_{[r]} \leq y_t \\ 1 \text{ for } y_t \geq y_{[T]} \end{cases}$ $r = 1,2,\dots,T-1$, where $y_{[T]}$ is the sample maximum,y_1 represents the sample minimum, z_t is the standardized series, r the ranking number of y_t and T the total number of observations in the sample.

measure we employ is the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model of Bollerslev (1986) and the GARCH(1,1) process can be illustrated as:

$$\begin{cases} y_t = AR(k) + \varepsilon_t \\ \varepsilon_t = \sqrt{h_t} z_t \\ h_t = \omega + \alpha \varepsilon_{t-1}^2 + \beta \ h_{t-1} \end{cases} \quad (1)$$

where y_t is the variable that will be included in the aggregation of FSI and h_t is the conditional variance. y_t, the mean equation, is modeled as a combination of an autoregressive $AR(k)$ process to get rid of the serially correlated errors and GARCH(1,1) process takes into account the time-varying characteristics of movements in related variables.

Similarly, we use a linear stochastic volatility model as the last volatility method we employ.[16] A linear stochastic volatility model can be illustrated as:

$$\begin{cases} y_t = AR(k) + \varepsilon_t \\ \varepsilon_t = \sqrt{h_t} z_t \\ h_t = \omega + \alpha h_{t-1} + u_t + \beta \ u_{t-1} \end{cases} \quad (2)$$

.

2.2.3 Measures of covariance and correlation

We use two different measures for correlation. The first measure is the realized correlation that is calculated over three-month rolling windows. The second measure is the Dynamic Conditional Correlation - Generalized Autoregressive Conditional Heteroscedasticity (DCC-GARCH) model of Engle (2002), which provides a convenient way to model the dynamic processes of conditional variances, conditional covariances and conditional correlations simultaneously. Similar to GARCH-type processes for modeling conditional variances, the current values of conditional covariances are related to their lagged values and lagged squared innovations in the model. However, in DCC-GARCH model, conditional covariances are modeled as nonlinear functions of the conditional variances.

The most important advantage of using DCC-GARCH model is that it enables us to detect the possible changes in conditional correlations over time between two variables.[17] To get the dynamic conditional correlation between two series, we will employ the following DCCGARCH(1,1) model:

$$\begin{aligned} \Delta Y_t &= \Theta \Delta X_t + \varepsilon_t \\ \varepsilon_t &\sim N(0, H_t) \quad t = 1, ..., T \\ \varepsilon_t &= H_t^{\frac{1}{2}} \upsilon_t \\ \upsilon_t &\sim N(0,1) \\ H_t &= D_t^{\frac{1}{2}} R_t D_t^{\frac{1}{2}} \\ R_t &= diag(Q_t)^{-\frac{1}{2}} Q_t diag(Q_t)^{-\frac{1}{2}} \\ Q_t &= (1 - \lambda_1 - \lambda_2) R + \lambda_1 \varepsilon_{t-1} \varepsilon_{t-1}^{'} + \lambda_2 Q_{t-1} \end{aligned} \quad (3)$$

where Equation 3 is a reduced-form Vector Autoregression process (VAR), $D_t = diag(h_{it})$ is a 2×2 matrix containing the time varying standard deviations from univariate GARCH(1,1) models and $R_t = \{\rho_{ij}\}_t$ is a correlation matrix containing conditional quasicorrelations for $i,j = 1,2$.

Table 1 lists the indicators used in the FSIs for Turkey. All the variables are grouped according to the market they belong to. We also represent the data availability related to each weekly indicator we

[16] The difference between three types of volatility measure we use can be visually observed in Appendix B, for only one variable, the USD/TL exchange rate, we include into the composite index.

[17] A visual comparison of realized correlation and the dynamic correlation we extract using a DCC-GARCH(1,1) model for BIST100 equity index and benchmark government index takes place in Appendix C.

employ. 3 month LIBOR rates and the calculation of $CMAX_t$ restricts our data availability to April 2006. Among the aggregation methods that will be used to form FSI, Bayesian dynamic factor model is robust to missing data. FSIs computed using basic portfolio theorem and PCA starts from April 2006 and the other FSIs start from April 2006.

2.3 Aggregation of the transformed variables

The choice of how to combine the variables, i.e. the weighting method, is one of the most challenging aspect of constructing a composite indicator. The importance of it reveals itself as a variety of different combination schemes appearing in the literature and there does not exist an agreement upon which combination method serves its purpose best. Indeed, we propose this difficulty as the major strength of the present paper, as we offer a wide array of methods that finalize at a single indicator via model averaging.

2.3.1 Variance equal weights

The most common weighting method used in the literature for a composite indicator is the variance equal weights (VEW). With this approach, a common index is generated by simply giving equal importance to each component variable. The variables are assumed to be normally distributed, which could be regarded as the primary drawback of this approach. The mean is subtracted from each variable before it is divided by its standard deviation. The advantage of this approach is that it is easy to understand and implement.[18] We obtain six different composite indicators when we diversify our volatility and correlation measures. Table 2 lists six different composite indicators with the related transformed variable employed during aggregation and their basic descriptive statistics. Figure 1 shows six variance equal weights FSIs. On the right axis and on top of Figure 1, we can see two FSIs that seem a bit different than the other four. These two composite indicators that exhibit a degree of fluctuation uses stochastic volatility for the transformed variables. Although in Figure 1 the composite indicators which are aggregated via stochastic volatility measure seem more volatile compared to the indicators which are aggregated via GARCH(1,1) and realized volatility, the descriptive statistics in Table 2 reveal that the standard errors of those indicators which are aggregated through stochastic volatility are smaller.

Table 2. FSI Based on Variance Equal Weights

FSI from VEW	transformation measures	mean	std. dev.
Ind.1	realized volatility and realized correlation	-0.006	0.350
Ind.2	realized volatility and correlation with DCC-GARCH(1,1)	-0.003	0.354
Ind.3	volatility with GARCH(1,1) and realized correlation	-0.007	0.349
Ind.4	volatility with GARCH(1,1) and correlation with DCC-GARCH(1,1)	-0.005	0.354
Ind.5	stochastic volatility and realized correlation	-0.001	0.269
Ind.6	stochastic volatility and correlation with DCC-GARCH(1,1)	-0.001	0.261

[18] Next to these merits, it is also applicable for cross-country comparisons, that is why it is the most popular technique employed in the literature.

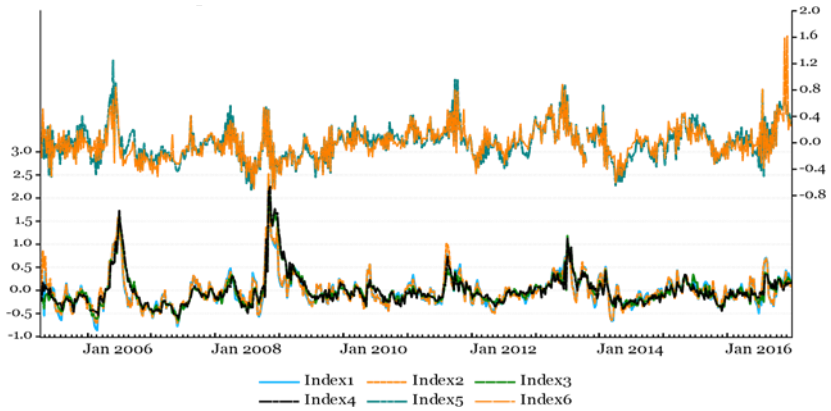

Figure 1: FSI based on variance equal weights

2.3.2 Principal Component Analysis

PCA is another commonly employed weighting method within the FSI literature. PCA uses an orthogonal transformation to convert a set of observations of potentially correlated variables into a set of values of uncorrelated variables. In other words, the principal components are assumed to be uncorrelated (orthogonal).[19] For each principal component, the analysis determines a weighted linear combination of the variables that maximizes the percentage of the total variance of each series. The first principal component explains the largest percentage of the variance, the second principal component the next most and so on. The variables are also standardized within the framework of PCA weighting scheme, and as the variables are standardized, the principal component loadings have a natural interpretation. The coefficient of each variable represents the effect on the composite stress indicator of a one-standard deviation change in the corresponding variable. Table 3 lists the six different composite indicators with the related transformed variable employed during aggregation and their basic descriptive statistics. Figure 2 shows six composite indicators aggregated with PCA.

Table 3 FSI Based on Principal Component Analysis

FSI from PCA	transformation measures	mean	std. dev.
Ind.7	realized volatility and realized correlation	0.000	2.187
Ind.8	realized volatility and correlation with DCC-GARCH(1,1)	0.000	2.207
Ind.9	volatility with GARCH(1,1) and realized correlation	0.000	2.259
Ind.10	volatility with GARCH(1,1) and correlation with DCC-GARCH(1,1)	0.000	2.282
Ind.11	stochastic volatility and realized correlation	0.000	1.879
Ind.12	stochastic volatility and correlation with DCC-GARCH(1,1)	0.000	1.869

[19] In PCA the most number of principal components one can get is equal to the number of variables. In studies involving coincidence and composite indicators, researchers usually assume that there exist one component that derives the markets, in our case we expect to have one common component deriving the financial stress among five different markets. This common component will be our FSI.

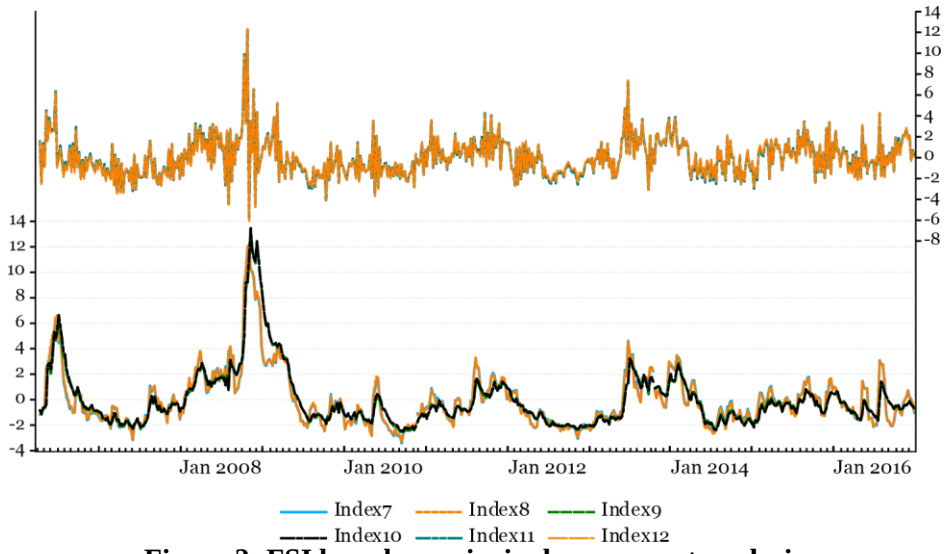

Figure 2: FSI based on principal component analysis

2.3.3 Portfolio theory

An aggregation scheme that is gaining wider acceptance in the FSI literature is the one that is based on the portfolio theory. As the main intention of a stress indicator is to raise awareness about the joint destruction capacity of each subsector on real economic activity, i.e. systemic risk, a weighting scheme relied on the portfolio theory is adopted. This theory suggests that the portfolio weights for the sub-indexes can be computed on the basis of cross-correlations across each sub-sectors. In doing so, the contribution of changes in the sub-indexes are higher once the correlations between each sector is higher. The proposed scheme is defined as,

$$FSI_t = (\omega \circ s_t) C_t (\omega \circ s_t)^0 \quad (4)$$

where ω is the vector of constant sub-index weights, s_t is the vector of sub-indexes, $\omega \circ s_t$ is the Hadamard-product, and the matrix of time-varying cross-correlation coefficients,

$$C_t = \begin{pmatrix} 1 & \rho_{12,t} & \rho_{13,t} & \rho_{14,t} & \rho_{15,t} \\ \rho_{12,t} & 1 & \rho_{23,t} & \rho_{24,t} & \rho_{25,t} \\ \rho_{13,t} & \rho_{23,t} & 1 & \rho_{34,t} & \rho_{35,t} \\ \rho_{14,t} & \rho_{24,t} & \rho_{34,t} & 1 & \rho_{45,t} \\ \rho_{15,t} & \rho_{25,t} & \rho_{35,t} & \rho_{45,t} & 1 \end{pmatrix}$$

is composed of the $\rho_{ij,t}$ which denotes for dynamic cross-correlations between sub-indexes i and j which are estimated via DCC-GARCH(1,1) model. Table 4 lists the descriptive statistics of two FSIs that are constructed using the portfolio theory, and Figure 3 illustrates these two FSIs as time-series.

Table 4. FSI Based on Portfolio Theory

FSI from portfolio theory	transformation measures	mean	std. dev
Ind.13	Empirical cdf transformation	19.298	54.226
Ind.14	standardizing assuming normal distribution	17.684	16.869

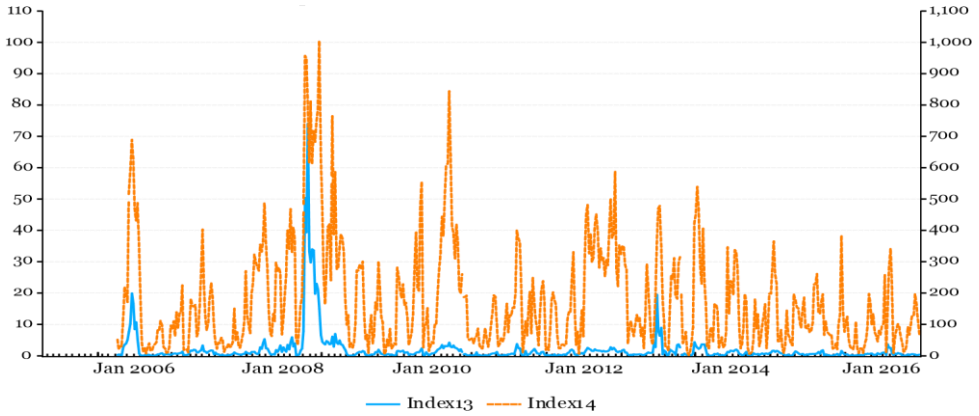

Figure 3: FSI based on portfolio theory

2.3.4 Dynamic factor analysis

This part of the paper presents the last method of aggregation that takes into consideration of the dynamic nature of the final composite indicator.[20] We use the Bayesian dynamic latent factor model of Otrok et al. (1998) to aggregate the variables. For simplicity, we will use the same notation as in Otrok et al. (1998) to describe the model. The model is patterned after the "new indexes of coincident and leading indicators" of Stock and Watson (1989) and Stock and Watson (1993).[21] Accordingly, there are n variables, i.e. 14 variables for our case, denoted y_i, on which observations have been collected for periods $t = 1,...,T$. There is a single common factor, y_0, which accounts for all comovement among the n variables. Thus:

$$y_{it} = a_i + b_i y_{0t} + \varepsilon_{it} \qquad E\varepsilon_{it}\varepsilon_{jt-s} = 0 \text{ for } i \neq j \tag{5}$$

The idiosyncratic errors ε_{it} may be serially correlated, and are modeled as p_i-order autoregressions:

$$\begin{aligned} \varepsilon_{it} &= \phi_{i1}\varepsilon_{it-1} + \phi_{i2}\varepsilon_{it-2} + \cdots + \phi_{ip_i}\varepsilon_{it-p_i} + u_{it} \\ Eu_{it}u_{jt-s} &= \sigma_i^2 \text{ for } i = j, s = 0; \qquad 0 \text{ otherwise} \end{aligned} \tag{6}$$

The evolution of the factor is likewise governed by an autoregression, of order q:

$$\begin{aligned} y_{0t} &= \varepsilon 0t \\ \varepsilon_{0t} &= \phi_{01}\varepsilon_{0t-1} + \phi_{02}\varepsilon_{0t-2} + \cdots + \phi_{0q}\varepsilon_{0t-q} + u_{0t} \\ Eu_{0t}u_{0t-s} &= \sigma_0^2 \text{ for } s = 0; 0 \text{ otherwise}, \qquad Eu_{0t}u_{it-s*} = 0, \ \forall i, s \end{aligned} \tag{7}$$

The innovations u_{it}, $i = 0,...,n$ are assumed to be zero mean, independent normal random variables; that is, $u_{it} \sim N(0,\sigma_i^2)$.[22] Table 5 and Figure 4 represents the FSI extracted by employing Bayesian dynamic factor model.

[20] See Matheson (2012) and Van Roye (2014).
[21] See all the details related to the Bayesian dynamic latent factor model in Otrok et al. (1998).
[22] For all the other details about the model, see Otrok et al. (1998).

Table 5.FSI Based on Bayesian Dynamic Factor Model

FSI from BDFM	transformation measures	mean	std. dev.
Ind.15	standardizing assuming normal distribution	0.001	0.104

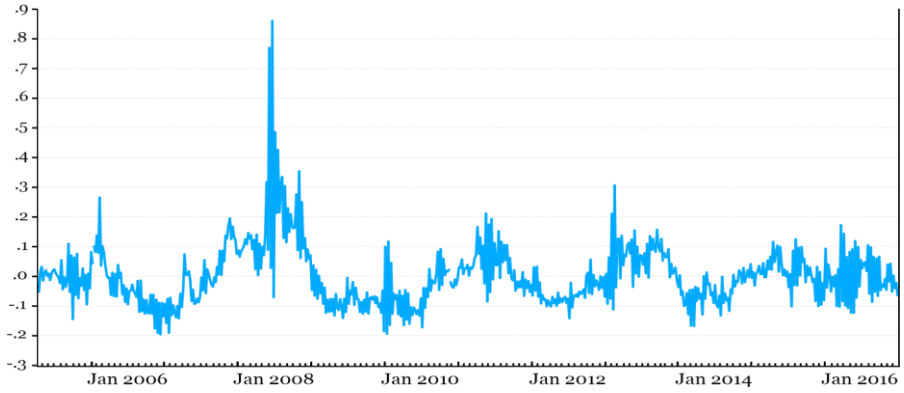

Figure 4: FSI based on Bayesian dynamic factor model

3 Choice of the FSI

In general, the usefulness of an indicator lies in its ability to measure what it was designed to measure. In addition to that, one of the main objectives of constructing a composite indicator for financial stress is to help policymakers identify stress levels in the financial system that may cause series concern and affect the working of the whole macroeconomy. Within this framework, we will try to address some basic questions, e.g. can constructed indexes measure systemic stress successfully? Do changes in the constructed indexes are good leading indicators for financial crisis? Can the composite indicators predict economic conditions? To answer these questions, first, we will examine the correlations between constructed indicators with monthly industrial production cycle and business conditions index.[23] We will, then, conduct an out-of-sample forecasting exercise using our indicators, industrial production growth rate and business conditions index. We will perform a probit model to see if the indicators can identify stress periods. To pick up stress periods, we use expert judgments and the turning points of economic activity as appropriate references. As a final attempt, we compute a final FSI for Turkey through averaging all the FSIs via rolling correlation scheme.

3.1 Correlation evaluation of the FSIs

We first discuss the simple correlations between the 15 FSIs, the industrial production cycle and the BCI, respectively. Table 6 lists the correlations of all the FSIs with the industrial production cycle and Table 7 lists the correlations of FSIs with the BCI.[24] Overall, the results suggest that the correlation metrics are offering high close association between the indicators and mentioned economic activity indicators. The correlations are within [-0.11,-0.38] and [-0.11,-0.73] range, for the industrial production cycle and the BCI, respectively. The correlations with the BCI are generally higher, which may be due to better performance of the BCI measure in reflecting economic activity.

[23] The business conditions index (BCI) of OECD is based on enterprises' assessment of production, orders and stocks, as well as its current position and expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions.

[24] We calculate the cycle of the industrial production with HP filter.

Table 6. Correlation with Industrial Production Cycle

	IP	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15
IP	1.00	-0.17	-0.19	-0.37	-0.38	0.15	-0.17	-0.11	-0.11	-0.25	-0.25	0.11	0.11	-0.23	-0.18	0.37
Ind.1	-0.17	1.00	0.99	0.87	0.85	0.43	1.00	0.77	0.77	0.67	0.67	0.51	0.49	0.50	0.62	0.25
Ind.2	-0.19	0.99	1.00	0.87	0.87	0.39	0.99	0.79	0.79	0.70	0.70	0.51	0.49	0.52	0.65	0.26
Ind.3	-0.37	0.87	0.87	1.00	0.99	0.28	0.87	0.74	0.74	0.81	0.81	0.46	0.43	0.55	0.61	0.16
Ind.4	-0.38	0.85	0.87	0.99	1.00	0.24	0.85	0.74	0.75	0.82	0.83	0.45	0.43	0.56	0.63	0.16
Ind.5	0.15	0.43	0.39	0.28	0.24	1.00	0.43	0.04	0.05	-0.08	-0.07	0.49	0.47	-0.03	0.06	0.11
Ind.6	-0.17	1.00	0.99	0.87	0.85	0.43	1.00	0.77	0.77	0.67	0.67	0.51	0.49	0.50	0.62	0.25
Ind.7	-0.11	0.77	0.79	0.74	0.74	0.04	0.77	1.00	1.00	0.94	0.94	0.70	0.69	0.50	0.73	0.39
Ind.8	-0.11	0.77	0.79	0.74	0.75	0.05	0.77	1.00	1.00	0.94	0.94	0.70	0.69	0.51	0.73	0.38
Ind.9	-0.25	0.67	0.70	0.81	0.82	-0.08	0.67	0.94	0.94	1.00	1.00	0.61	0.59	0.54	0.71	0.31
Ind.10	-0.25	0.67	0.70	0.81	0.83	-0.07	0.67	0.94	0.94	1.00	1.00	0.60	0.59	0.54	0.71	0.30
Ind.11	0.11	0.51	0.51	0.46	0.45	0.49	0.51	0.70	0.70	0.61	0.60	1.00	1.00	0.18	0.42	0.41
Ind.12	0.11	0.49	0.49	0.43	0.43	0.47	0.49	0.69	0.69	0.59	0.59	1.00	1.00	0.18	0.42	0.42
Ind.13	-0.23	0.50	0.52	0.55	0.56	-0.03	0.50	0.50	0.51	0.54	0.54	0.18	0.18	1.00	0.71	0.20
Ind.14	-0.18	0.62	0.65	0.61	0.63	0.06	0.62	0.73	0.73	0.71	0.71	0.42	0.42	0.71	1.00	0.28
Ind.15	0.37	0.25	0.26	0.16	0.16	0.11	0.25	0.39	0.38	0.31	0.30	0.41	0.42	0.20	0.28	1.00

Table 7: Correlation with Business Condition Index

BCI	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15	
BCI	1.00	-0.39	-0.42	-0.57	-0.59	0.25	-0.39	-0.61	-0.61	-0.73	-0.73	-0.25	-0.26	-0.53	-0.58	-0.11
Ind.1	-0.39	1.00	0.99	0.87	0.85	0.43	1.00	0.77	0.77	0.67	0.67	0.51	0.49	0.50	0.62	0.25
Ind.2	-0.42	0.99	1.00	0.87	0.87	0.39	0.99	0.79	0.79	0.70	0.70	0.51	0.49	0.52	0.65	0.26
Ind.3	-0.57	0.87	0.87	1.00	0.99	0.28	0.87	0.74	0.74	0.81	0.81	0.46	0.43	0.55	0.61	0.16
Ind.4	-0.59	0.85	0.87	0.99	1.00	0.24	0.85	0.74	0.75	0.82	0.83	0.45	0.43	0.56	0.63	0.16
Ind.5	0.25	0.43	0.39	0.28	0.24	1.00	0.43	0.04	0.05	-0.08	-0.07	0.49	0.47	-0.03	0.06	0.11
Ind.6	-0.39	1.00	0.99	0.87	0.85	0.43	1.00	0.77	0.77	0.67	0.67	0.51	0.49	0.50	0.62	0.25
Ind.7	-0.61	0.77	0.79	0.74	0.74	0.04	0.77	1.00	1.00	0.94	0.94	0.70	0.69	0.50	0.73	0.39
Ind.8	-0.61	0.77	0.79	0.74	0.75	0.05	0.77	1.00	1.00	0.94	0.94	0.70	0.69	0.51	0.73	0.38
Ind.9	-0.73	0.67	0.70	0.81	0.82	-0.08	0.67	0.94	0.94	1.00	1.00	0.61	0.59	0.54	0.71	0.31
Ind.10	-0.73	0.67	0.70	0.81	0.83	-0.07	0.67	0.94	0.94	1.00	1.00	0.60	0.59	0.54	0.71	0.30
Ind.11	-0.25	0.51	0.51	0.46	0.45	0.49	0.51	0.70	0.70	0.61	0.60	1.00	1.00	0.18	0.42	0.41
Ind.12	-0.26	0.49	0.49	0.43	0.43	0.47	0.49	0.69	0.69	0.59	0.59	1.00	1.00	0.18	0.42	0.42
Ind.13	-0.53	0.50	0.52	0.55	0.56	-0.03	0.50	0.50	0.51	0.54	0.54	0.18	0.18	1.00	0.71	0.20
Ind.14	-0.58	0.62	0.65	0.61	0.63	0.06	0.62	0.73	0.73	0.71	0.71	0.42	0.42	0.71	1.00	0.28
Ind.15	-0.11	0.25	0.26	0.16	0.16	0.11	0.25	0.39	0.38	0.31	0.30	0.41	0.42	0.20	0.28	1.00

3.2 Forecasting performance evaluation of the FSIs

In this part of the paper, we investigate whether our 15 different composite indicators can forecast economic growth. To conduct this experiment, we conduct a series of simple out-of-sample forecasting experiments. The forecasting model is a simple bivariate vector autoregression (VAR) of the form:

$$Y_t = \Phi + \Gamma(L)Y_{t-1} + \Psi_t \quad (8)$$

where Y_t is a vector consisting of the period t values of the economic indicator that we would like to forecast, i.e. the industrial production growth rate or the BCI. Φ is the vector including constant coefficients. $\Gamma(L)$ is a matrix polynomial in the lag operator and Ψ_t is the reduced form residuals.[25]

The forecasting experiments are conducted on a common sample (between March 2005 and October 2015) for both the industrial production growth and the BCI. The VAR model is estimated for the time period March 2005 and October 2015 and then we get a forecast $t + 1$ for November 2015. For the forecast t+2, we insert the forecast for t+1 , i. e. November 2015, to our sample and estimate the VAR again to get the forecast $t + 2$, i.e. December 2015. For the forecast t+3, we add the first two forecast to our sample and estimate the VAR again, and therefore we conduct our forecasting exercise till $t + 12$ recursively, estimating the VAR model at each step. Finally, we compute the forecast errors, i.e. root mean squared error (RMSE), by comparing the forecasts at the different horizons with the realized values.[26]

Table 8 presents the forecasting exercise conducted using the industrial production index and Table 9 presents the forecasting exercise conducted using the BCI. The results regarding the out-of-sample forecasts also indicate different forecasting performances for the FSIs. For instance, while the results point to the FSI created by dynamic factor model (Ind15) in BCI having the best forecasting performance and this FSI is not that much stronger in forecasting industrial production cycle. Although the disagreement between the performance of the models seems to be a caveat, the choice of economic activity measure emerges to be an important culprit, since the conflict between the FSIs mainly arises from the economic activity measures.

Table 8: Out of Sample Forecasts of FSIs-VAR Results with Industrial Production Index

RMSE	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15
t+1	0.01008	0.01006	0.01229	0.01141	0.00552	0.00783	0.00840	0.00841	0.01137	0.01148	0.00291	0.00280	0.01450	0.01234	0.00691
t+2	0.00713	0.00713	0.00871	0.00814	0.00560	0.00639	0.00614	0.00611	0.00807	0.00815	0.00363	0.00358	0.01025	0.00901	0.00683
t+3	0.00683	0.00685	0.00797	0.00776	0.00586	0.00647	0.00859	0.00862	0.00901	0.00930	0.00585	0.00599	0.00961	0.00779	0.00660
t+4	0.00591	0.00593	0.00691	0.00676	0.00508	0.00560	0.00751	0.00753	0.00796	0.00818	0.00543	0.00556	0.00858	0.00676	0.00572
t+5	0.00720	0.00740	0.00749	0.00761	0.00630	0.00626	0.00822	0.00822	0.00864	0.00878	0.00546	0.00558	0.00975	0.00796	0.00721
t+6	0.00809	0.00855	0.00826	0.00871	0.00779	0.00742	0.00967	0.00963	0.01048	0.01052	0.00666	0.00693	0.01185	0.00963	0.00827
t+7	0.00867	0.00893	0.00859	0.00900	0.00857	0.00799	0.00940	0.00939	0.01011	0.01019	0.00728	0.00727	0.01174	0.00975	0.00862
t+8	0.00944	0.00954	0.01040	0.01053	0.00988	0.00967	0.00966	0.00969	0.01101	0.01107	0.00963	0.00975	0.01322	0.01145	0.01006
t+9	0.00890	0.00899	0.00980	0.00993	0.00931	0.00912	0.00911	0.00914	0.01038	0.01044	0.00908	0.00919	0.01246	0.01079	0.00948
t+10	0.03736	0.03757	0.03660	0.03658	0.03432	0.03424	0.03775	0.03779	0.03596	0.03628	0.03444	0.03447	0.03700	0.03597	0.03527
t+11	0.03733	0.03757	0.03636	0.03644	0.03483	0.03438	0.03795	0.03796	0.03593	0.03620	0.03496	0.03497	0.03745	0.03653	0.03571
t+12	0.03674	0.03698	0.03587	0.03605	0.03458	0.03393	0.03715	0.03717	0.03553	0.03575	0.03478	0.03478	0.03682	0.03614	0.03570

[26] $RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n} e_t^2}$

[25] We determine the lag order p of $VAR(p)$ using Bayesian information criterion. Accordingly we employed two lags.

Note: This table presents the performance of the FSIs in forecasting economic activity (industrial production index). The forecasting model is a simple bivariate vector autoregression (VAR) through twelve month periods.

Table 9: Out of Sample Forecasts of FSIs-VAR Results with Business Condition Index

RMSE	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15
t+1	0.01825	0.00731	0.04326	0.01866	0.00099	0.00298	0.00081	0.00352	0.05682	0.05891	0.01353	0.01080	0.06149	0.05360	0.17048
t+2	0.19735	0.17107	0.17099	0.04333	0.12157	0.14362	0.09025	0.08856	0.29504	0.28455	0.09241	0.08607	0.34321	0.25969	0.18708
t+3	0.47198	0.43441	0.41861	0.29932	0.31551	0.37883	0.30566	0.30424	0.67320	0.65930	0.26741	0.25819	0.73668	0.61717	0.15427
t+4	0.76026	0.71198	0.70092	0.54667	0.51243	0.60895	0.63298	0.63103	105.533	105.050	0.46411	0.44894	111.764	100.557	0.25677
t+5	0.93886	0.87876	0.85257	0.68192	0.62077	0.74245	0.83747	0.83332	123.236	124.051	0.56268	0.53979	136.270	126.618	0.39849
t+6	0.98470	0.91658	0.86452	0.69362	0.63269	0.76478	0.85340	0.84656	120.979	122.832	0.55492	0.52655	144.854	136.348	0.45677
t+7	0.95163	0.88050	0.81228	0.64660	0.59618	0.72177	0.79154	0.78446	112.439	114.477	0.51504	0.49155	143.115	135.838	0.45589
t+8	0.89090	0.82364	0.76192	0.61713	0.56116	0.68132	0.77682	0.77745	106.005	107.645	0.57284	0.56700	136.091	129.813	0.42683
t+9	0.83995	0.77654	0.71835	0.58184	0.52907	0.64235	0.73239	0.73299	0.99943	101.489	0.54007	0.53458	128.308	122.389	0.40242
t+10	0.81230	0.76456	0.70443	0.62653	0.54907	0.67874	0.89404	0.92308	101.943	103.110	0.73426	0.72662	122.354	116.704	0.40078
t+11	0.79309	0.75672	0.67550	0.63103	0.56691	0.68734	0.96194	100.459	101.750	103.197	0.77715	0.75874	116.703	111.323	0.41394
t+12	0.81208	0.79167	0.67731	0.69074	0.62843	0.73108	105.615	110.976	105.689	107.501	0.83691	0.80784	111.985	108.634	0.49868

Note: This table presents the performance of the FSIs in forecasting economic activity (BCI). The forecasting model is a simple bivariate vector autoregression (VAR) through twelve month periods.

3.3 Performance evaluation of the FSIs

One of the objectives of the FSI, as a leading indicator, is to predict material changes in economic activity. We would therefore expect that increases in the FSI, which can be translated as heightened stress in financial markets, would subsequently result in deterioration in economic activity. To test this conjecture, we estimate a probit model in which the binary index is first derived from expert judgment and second using the turning points in Composite Leading Indicator CLI produced by the OECD. The probit model we estimate is,

$$Pr(Tension_t) \quad = \quad \phi(c + \alpha x_t + \sum_{k=0}^{1} b_k \Delta x_{t-k} + e_t) \tag{9}$$

where $Tension_t$ is the binary index derived by expert judgment and using the turning points in CLI produced by the OECD respectively, and φ is normal cumulative distribution function and x_t is the FSI that is computed with alternative transformations and techniques.

The fitted probability values pertaining to both models provide intuitive chronology for the deterioration in economic activity.[26] We report here the probit models in Table 10 and 11 to show the predictive significance (power) of the models. Both models, where the dependent crisis variables either depend on expert judgments or the turning points in CLI, exhibit high predictive power. We propose the two best models given the McFadden's R-square in Figure 5 and Figure 6.

[26] The results for the probability values are available on request.

Table 10: Probit Regression Results with Expert Judgement

	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15
constant	-1.065	-1.105	-1.084	-1.101	-0.866	-1.065	-1.034	-1.033	-0.987	-0.988	-1.193	-1.164	-1.583	-1.770	-0.982
	(0.159)	(0.167)	(0.171)	(0.179)	(0.128)	(0.159)	(0.161)	(0.161)	(0.158)	(0.159)	(0.197)	(0.191)	(0.260)	(0.247)	(0.142)
x_t	4.496	5.017	4.885	5.591	2.498	4.496	0.537	0.538	0.518	0.525	0.996	0.996	0.039	0.058	4.672
	(0.807)	0.(902)	(0.882)	-1.026	(0.735)	(0.807)	(0.109)	(0.109)	(0.106)	(0.107)	(0.193)	(0.195)	(0.011)	(0.014)	-1.734
Δx_t	-2.205	-2.556	-0.286	-0.571	-0.789	-2.205	-0.213	-0.204	0.014	0.027	-0.397	-0.427	-0.021	-0.032	-10.103
	(0.660)	(0.733)	(0.843)	(0.949)	(0.740)	(0.660)	(0.117)	(0.116)	(0.167)	(0.166)	(0.161)	(0.164)	(0.011)	(0.012)	-3.585
Δx_{t-1}	-1.481	-1.600	-0.402	-0.477	-1.025	-1.481	-0.179	-0.172	0.016	0.014	-0.378	-0.391	-0.014	-0.024	-10.619
	(0.538)	(0.579)	(0.791)	(0.835)	(0.731)	(0.538)	(0.109)	(0.109)	(0.163)	(0.161)	(0.169)	(0.169)	(0.010)	(0.010)	-3.432
Mc-Faddens R−square	0.394	0.438	0.465	0.510	0.095	0.394	0.317	0.323	0.340	0.349	0.337	0.318	0.111	0.313	0.185

Note: This table estimates a probit model to observe how the FSI is associated with the tension periods. The bold values are significant at conventional levels. The dependent variable is a dummy variable taking the value of one for the periods where it is deemed as tension periods. The tension periods are identified in correspondence with expert judgments.

Table 11: Probit Regression Results with CLI Reference Turning Points

	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14	Ind.15
constant	**-0.592**	**-0.596**	**-0.588**	**-0.590**	**-0.614**	**-0.592**	**-0.576**	**-0.574**	**-0.544**	**-0.544**	**-0.583**	**-0.584**	**-0.816**	**-0.714**	**-0.658**
	(0.116)	(0.117)	(0.116)	(0.116)	(0.117)	(0.116)	(0.130)	(0.130)	(0.128)	(0.128)	(0.130)	(0.130)	(0.215)	(0.145)	(0.124)
x_t	**1.008**	**1.086**	**0.831**	**0.893**	**-1.130**	**1.008**	**0.403**	**0.395**	**0.364**	**0.353**	**0.573**	**0.596**	**0.017**	**0.011**	**6.990**
	(0.465)	(0.458)	(0.405)	(0.401)	(0.696)	(0.465)	(0.088)	(0.087)	(0.0878)	(0.085)	(0.129)	(0.134)	(0.010)	(0.005)	(1.782)
Δx_t	-0.726	**-0.784**	-0.412	-0.466	0.031	**-0.726**	**-0.253**	-0.247	-0.125	-0.127	**-0.357**	**-0.369**	-0.011	-0.006	**-8.113**
	(0.462)	(0.462)	(0.546)	(0.546)	(0.731)	(0.462)	(0.104)	(0.103)	(0.147)	(0.143)	(0.137)	(0.141)	(0.010)	(0.005)	(2.910)
$\Delta xt-1$	-0.400	-0.412	-0.271	-0.316	0.212	-0.400	-0.154	-0.148	-0.143	-0.135	**-0.289**	**-0.297**	-0.004	-0.004	**-8.897**
	(0.429)	(0.434)	(0.591)	(0.592)	(0.732)	(0.429)	(0.099)	(0.097)	(0.151)	(0.148)	(0.136)	(0.138)	(0.009)	(0.004)	(3.060)
Mc-Faddens R−square	0.031	0.038	0.029	0.034	0.023	0.031	0.187	0.185	0.174	0.171	0.148	0.147	0.021	0.056	0.152

Note: This table estimates a probit model to observe how the FSI is associated with the tension periods. The bold values are significant at conventional levels. The dependent variable is a dummy variable taking the value of one for the periods where it is deemed as tension periods. The tension periods are the CLI reference turning points.

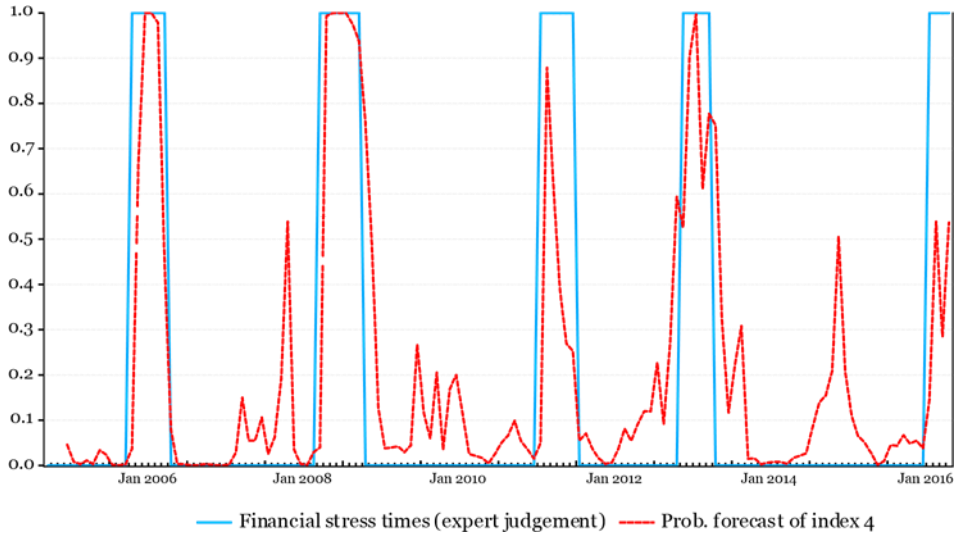

Figure 5: Probit Regression Forecast with Expert Judgement

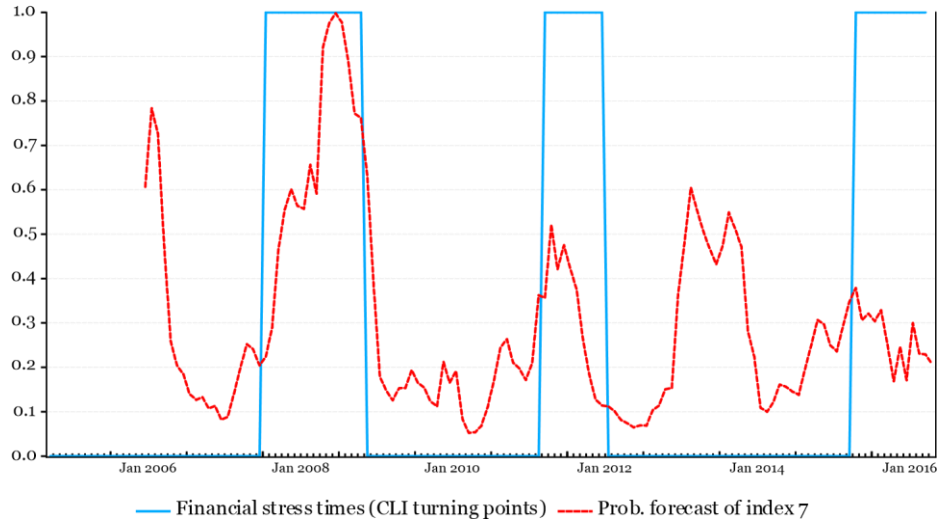

Figure 6: Probit Regression Forecast with CLI Reference Turning Points

The results for the performance of FSIs highlight that, besides their agreement on indicating the tension periods in financial markets, they also provide highly promising predictions for economic activity. Overall, these can be interpreted that, regardless of the technique and transformation, the FSIs serve quite reliable monitoring tools for the policymakers.

3.4 Aggregation Through Rolling Correlation

The discussions in the previous subsections show that all of the computed FSIs are performing good in terms of different computational approaches with respect to capturing financial stress periods. This result motivates us to benefit from all the FSIs via model averaging with an appropriate weighting scheme. As the measurement of the negative impact of a financial stress on economic activity is the key point in this research, we compute time-varying weights via rolling correlations of each FSI with industrial production index. To do so, we select a threemonth window. We first compute correlations of each FSI with industrial production in a rolling three-month window. The rolling windows can be represented as, $[t-t+3],[t+4-t+6],...[t+ n-3]-[t+n]$, where the beginning of a window is the following month of the previous window's end month.

The final weight of FSI i at a rolling window $[t - t + 3]$ is:

$$W_{i,t} = \frac{Abs(corr_{FSI_{i,t-t+3}, IP_{t-t+3}})}{\sum_{i=1}^{n} Abs(corr_{FSI_{i,t-t+3}, IP_{t-t+3}})}. \quad (10)$$

The computation of FSI *i* at a rolling window [$t - t + 3$] thus allows each FSI to contribute to final FSI at a rate of its association with industrial production index.

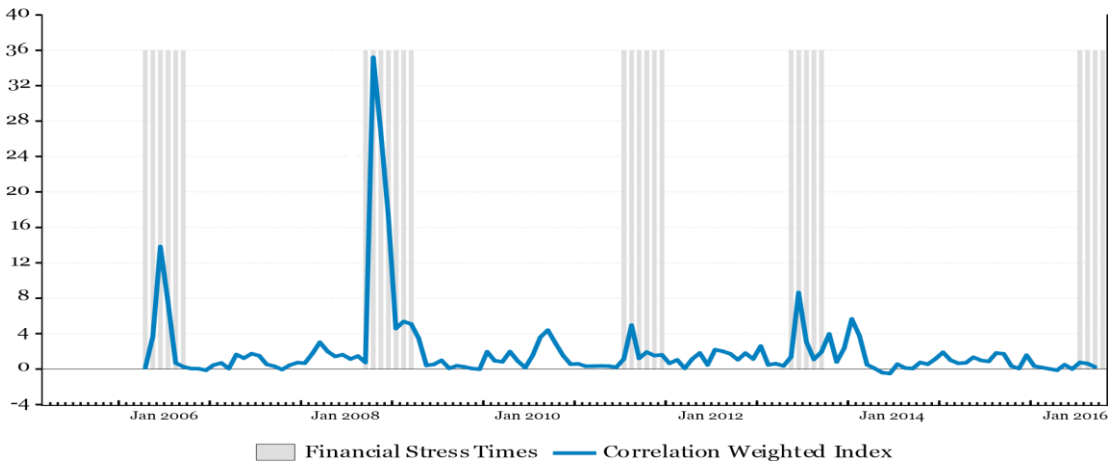

Figure 7: Final FSI with Rolling-Correlation Based Weighting

Figure 7 plots the final FSI and the tension periods. The performance of the final index in terms of detecting stress periods is also remarkable.

4 Conclusion

The 2008 global financial crisis that erupted in the US and affected many advanced and emerging economies had severe spillovers. The recent global financial crisis was different from many of the past crises in the sense that the impact of it had significant and long-lived economic repercussions. It is now widely accepted that financial crises coupled with economic downturns create more severe affects in national economies.

The past literature on economic crises mainly focused on early warning systems. Early warning systems literature, in general, proposes that the likelihood of a crisis is closely associated with several related macroeconomic, fiscal and financial indicators. The monitoring of these indicators can be used effectively to avoid such devastating crisis. However, one of the main weaknesses of the early warning indicators is that the variables used for the models are low frequency in nature, which hinders an active and timely monitoring.

The necessity for financial stress indicators originates mainly from the caveats of the early warning systems. Devising indicators that are composed of high frequency data which have also close association with real economic activity is of crucial importance since the latest regulatory proposals suggest that timely detecting fragilities in financial markets is one of the top priorities. In this framework, this paper investigates how effectively the financial stress periods can be detected by financial stress indicators. Devising a number of stress indicators (FSIs) for Turkey, we propose that there is not a single best FSI for the financial system of Turkey in terms of different evaluation measures. However, regardless of the techniques and tools, the indicators successfully indicate past stress periods. The association of these FSIs with economic activity indicators are also robust. When the relationship between these FSIs and a number of economic activity indicators are analyzed, the results suggest that all the 15 FSIs can be effectively used for predicting the changes in economic activity.

One of the main strengths of this paper is that it provides the opportunity for comparison across a variety of tools and techniques in the financial stress literature. Although many papers present successful results favoring financial stress indicators, they fail to provide convincing evidence how robust their indicators to alternative technique and tools. The present paper fills this gap by presenting a variety of tools and techniques in computing variety of FSIs and their usefulness in detecting the stress periods. The performance measures with respect to different FSIs we compute with the combination of different

approaches and techniques, do not single out a specific approach or technique. This motivates us to benefit from all the FSIs in relation to their association with economic activity. We obtain a final FSI from all the composite indicators via model averaging with a weighting scheme where the weights are computed through rolling correlations of each FSI with the industrial production index. This weighting scheme proves to be a good smoother as the final FSI, resulting from the model averaging, is remarkable in capturing the stress episodes.

Although this paper presents a variety of research points with respect to the FSI literature, we leave a number of research themes unexplored. For instance, disentangling the external and internal drivers of the FSI will be the topic of a separate research. The results of that research will highlight the degree of vulnerability of stress indicators to external and internal shocks. The response of FSI to different shocks is specifically important for a national policymaker who is mandated to effectively contain the adverse spillovers in global financial markets.

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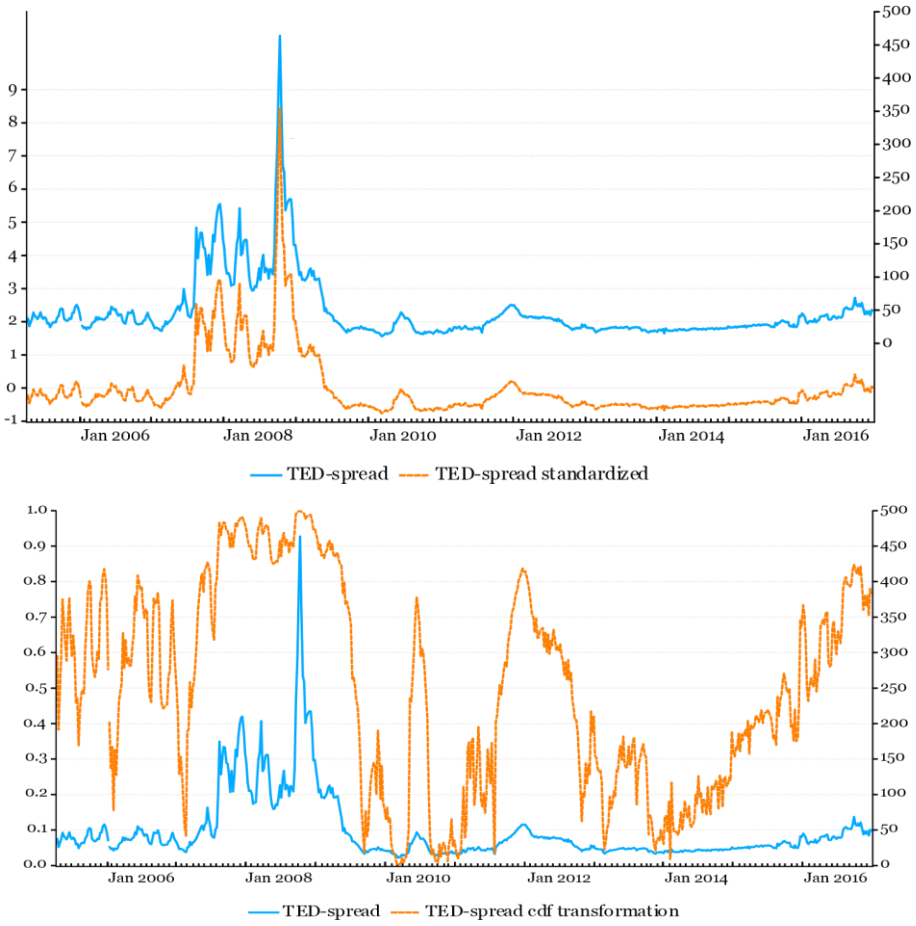
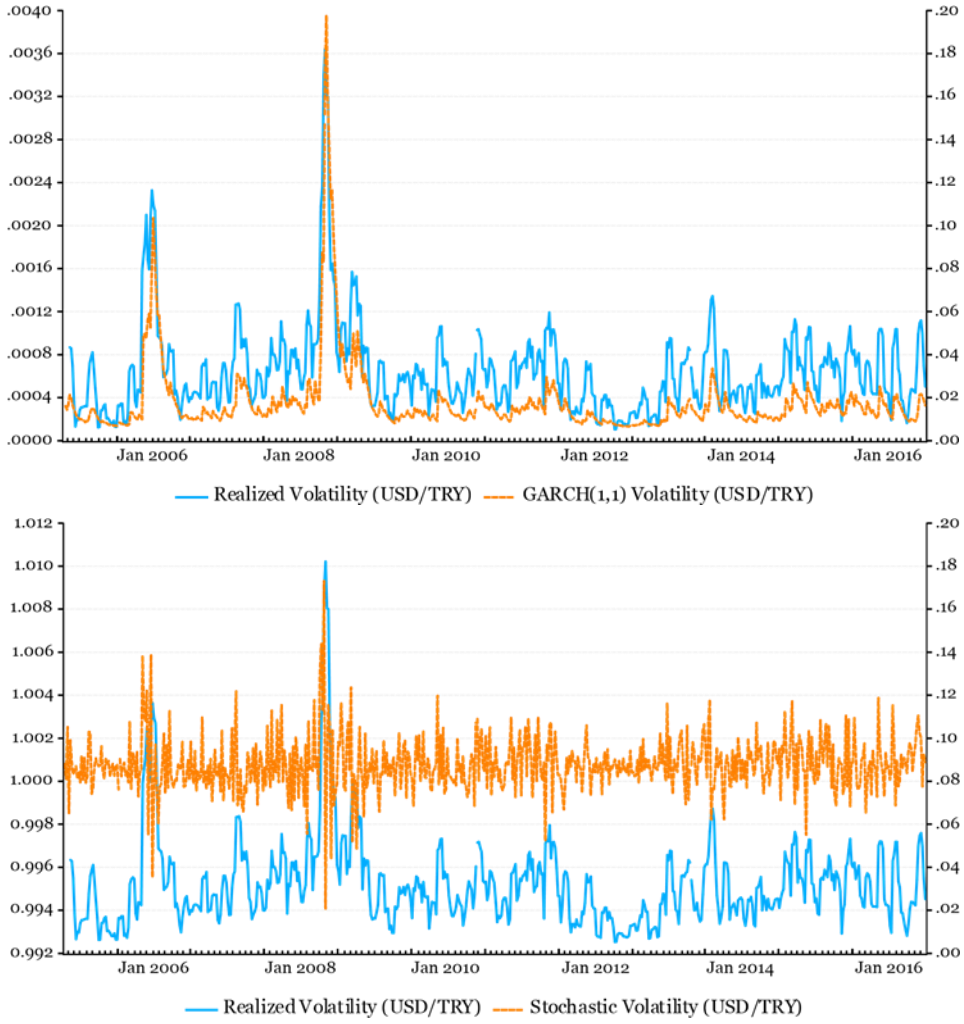
Appendices

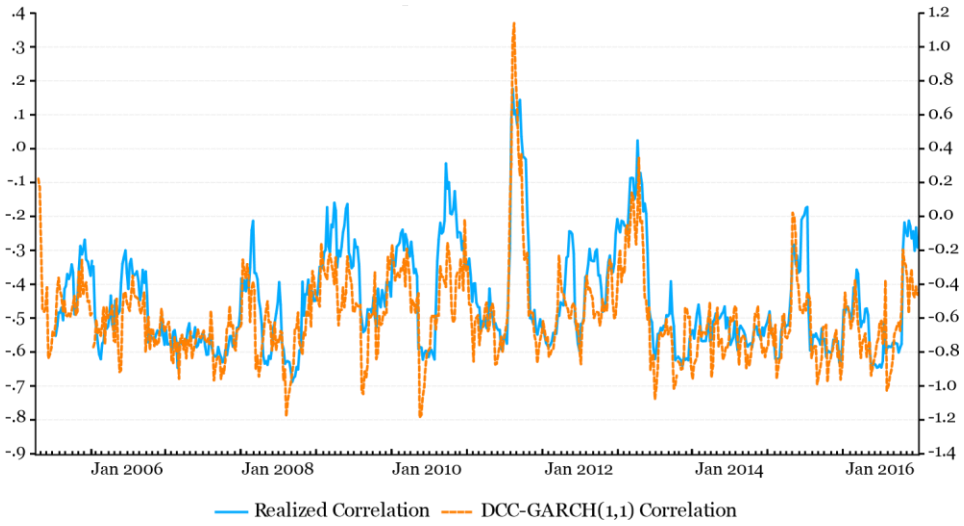
A Difference with respect to scaling



B Difference with respect to volatility measure



C Difference with respect to correlation measure–stock-bond correlation



TOWARDS ANEW HUMAN APPROACH FOR ECONOMICS, BANKING AND FINANCE[1]

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Abstract

Our main Objective for this research paper is defined to explore the new required - and neglected human role - to be designed and played by Public Finance, Monetary and Financial System and policies. The new role as dictated by the human subjective wellbeing determinants for building the groundwork upon which to approach human happiness and sustained wellbeing.

Also we intended to dedicate our main focus on the role that could be played by Islamic Economics which in addition to the wide spreading realization of its feasible conceptual and practical principles, it has been shown that Islamic banking and finance proved to be attracting international interest for its international financial inclusion.

The approached objective, adopted methodology and fulfilled required analytical sequence of this research concluded that a newly created regulatory environment and mission will place the fiscal and monetary systems within the national, regional and international sphere on the human track. Building the required constructive technological environment can lead to new and favorably better financial services. Islamic Shariah, corporate governance, institutional and legal determinants should be an integral key part within the whole required socio-economic and political system.

Islamic Fiscal, Monetary policies and within the Islamic Economics are proved to be equipped with their conceptual and pragmatic basis in order to fulfill a new mission for approaching human wellbeing from national to global perspectives.

Keywords; Subjective Wellbeing, Islamic Economics and Finance, Fiscal and Monetary Policies

1. Introduction

This research paper aimed at focusing on the role of the mentioned sectors which constitute a determining basic part of the holistic approach and the required Socio-Economic, moral and Political System for approaching happiness economics[2] .

Our research is based on the recent revolution in Economic Sciences which reached the methodology and approach for happiness economics through joint objective and subjective wellbeing[3]. This revolution gathered the tools of analysis used in economic and psychology sciences, motivated by the emerging need to approach human development not only through the conventional economics of Adam smith invisible hand of free market and basing all theories on the objective of building wealth rather than socio-economic moral and political determinants for human happiness.

At the early beginning of economic science by Adam smith the science centered on how to maximize production and consumption without directing attention to the question of human happiness, poverty, distribution of income and sustained favorable environment. The main center of thought had been directed towards building the nation strength and free market. Such thought led to motivate imperialistic powers without caring about parts of the human society in the developing and poor countries.

"The failure of our theories at the macro and micro levels to recognize the existence of the poor leads to numerous types of policy failures both at the theoretical and at the practical levels"[4] ASADZAMAN- F:\SSRN-id1291029.pdf

ASADZAMAN, rightly illustrated this long prevailing state of scientific thought when said (Ibid.) :

"For those of us who are human beings first and economists second, the consequences of this preoccupation with wealth and power have been disastrous. One can receive a Ph.D.in economics

without receiving one word of information about the extent of poverty in the world, or the meaning of hunger and deprivation"

The economic thought developed from Adam smith free market to mercantilism to socio economic development, then to human development and most recently to the Economics of Happiness which is defined as a historic revolution in the economic sciences which realized the integrated role of socio-economic, moral and political aspects of the human wellbeing development. (Beseiso2016).

Our recent history of economic thought including finance and banking sciences witnessed – in our thought – two main economic systems which succeeded in presenting main human challenges including social aspects as poverty, environment pillar of development, moral aspects of human wellbeing as well as political fundamental needed requirements for world human societies. These two systems are represented first in the social free market economic system while the second is represented in the Islamic Economic, Banking and Finance System.

The Social free market system has its wide spreading inclusion into European countries, such as Germany[5].

"The formation of this system by the Konrad Adenauer and Ludwig Erhard (the father's real free market economy, social) after World War II and that as an organization of economic and social commensurate with human dignity, man free his decisions capable of assuming the responsibility, is at the center of attention of the social market economy. The ethics, the thought of the social market economy to be self-responsibility and personal initiative and private property are essential elements of free market economy, social and market economy, social entrepreneurship social organization can be in harmony in which personal freedom and equal opportunities and growing prosperity with social progress secured through the work, and includes the practical side to a free market economy attempt to link the social order of freedom to achieve more than a burden".

The Islamic Economics school of thought and its practitioners in Banking and finance has witnessed a noticeable growing international inclusion, mainly in light of the most recent international financial crisis of 2008 as proved, through many empirical studies, to be effective in preventing crisis and to mitigating them when happening.

Islamic Economics system based its objectives, conceptual principles and practical teachings on the adoption of a multidisciplinary dynamic approach to human wellbeing and development. Muslim scholars did not focus their attention primarily on economic variables. They considered overall human well-being to be the end product of interaction over a long period of time between a number of economic, moral, social, political, demographic and historical factors in such a way that none of them is able to make an optimum contribution without the support of the others.

Therefore the well-being of the people is not dependent just on economic variables, as conventional economics has emphasized until recently, but also on the closely interrelated role of moral, psychological, social, economic, political, demographic and historical factors.

Ibn-Khaldun the Moslem Arab Philosopher and Socio-Economic Thinker introduced a cause and effect relationship into the discussion of historical phenomena. The Muqaddimah (his famous published scientific book research) represented the result of this desire. It tried to derive the principles that govern the rise and fall of a ruling dynasty, state (dawlah) or civilization **(**'umran). **(**Chamlou2013)

IbnKhaldun succeeded in his analysis related to the rise and fall of civilizations in concluding that the rise and fall of civilizations closely dependent on the well-being or misery of the people. This resulting thought led the way to consider the human wellbeing as the main determining factor for approaching civilization and seems to have had a clear vision of how all the different factors operate in an interrelated and dynamic manner over a long period to promote the development or decline of a society (Ibid.).

Justice occupied a pivotal place in this whole framework because of its crucial importance in the Islamic worldview There was an acute realization that justice is indispensable for development and that, in the absence of justice, there will be decline and disintegration.

2. The role of Fiscal and Monetary Policies in Approaching Happiness Economics

Financing is proved to be a powerful political, social and economic weapon in the modem world. It plays a prominent role not only in the allocation and distribution of scarce resources but also in the stability and growth of an economy. It also determines the power base, social status and economic condition of an individual in the economy. Hence, no socio-economic reform can be meaningful unless the public finance, monetary and financial system is also restructured in conformity with the socio-economic goals of the nation (Beseiso2016).

2.1. Required Fiscal and Monetary Policies

In order to approach the new objected role for Fiscal and monetary policies, these policies must be designed for social fairness and efficiency. The tax system must be structured to improve social inequalities and inefficiency. Innovative subsidy and supporting systems are necessary to establish a more caring society. Labor policy must encourage mother-child and family life. It is evident that family relationship is crucial to happiness. Employment policy must promote family stability.

Public policy can apply tax measures to encourage social responsible organization, business and producers. For example, the emphasis on food safety by means of supporting organic agriculture, and producers employing production techniques with health and environment concern. At the same time, tax or price policy can be used to discourage and raise production cost of producers that potentially put health and environment at risks. Good environment is important to happiness. There must be supports for various initiatives for natural resource and environment protection.

Various social policy or welfare policy such as old-age savings or health insurance or even health promotion schemes can be developed for old age security. As health is an important element of happiness, public policy for good health is fundamental. Public policy must respond to total aspects of health. With risks associated with globalization, aging, drugs, additions, mental health has become a worldwide problem. Various public policy and mental health promotion program need supports. Therefore, financing must be seriously considered.

Emphasis must shift toward more social venture and social responsible investment projects. Hence both financing and investment policy must shift toward public goals. In addition to environmental impact assessment, more social impact assessment must be a requirement for investment and financing.(Bruno &Stutzer1999).

2.2. Public Finance and human Wellbeing
Priorities in Spending to Face Islamic Countries Gap

Maqasid represent the Islamic Shariah objectives in order to promote the welfare of the people which lies in safeguarding their faith, their life, their intellect, their posterity and their wealth. Whatever ensures the safeguarding of these five serves public interest is desirable. The basis of the Shariah is wisdom and welfare of the people in this world as well as the Hereafter. This welfare lies in complete justice, mercy, well-being and wisdom. Anything that departs from justice to oppression, from mercy to harshness, from welfare to misery and from wisdom to folly, has nothing to do with the Shari'ah. (http://ibfd-fund.com/docs/Islam%20and%20the%20Economic%20Challenge.%20Umer%20Chapra.pdf

In spite of their excessive spending, the Islamic countries governments[6] have neither laid down the minimum infrastructure necessary for balanced and accelerated development nor supplied adequately the services indispensable for realizing the maqasid (Islam objectives) [7].

Rural infrastructure and agricultural extension services on which the well-being of the majority proportion of the population depends have been neglected.

"Education which should constitute the foundation stone of an Islamic society, has failed to respond to the socio-economic needs even in Muslim countries where it has received emphasis in the government budget".(Ibid.).

Due attention has not been given to character building and educational and vocational training opportunities have not become uniformly available to all sectors of the population. Health expenditure has been concentrated mainly in the major cities in large capital-intensive hospitals, and on curative medicine. Yet the majority of the population lives in the countryside needs a network of simple clinics

and paramedical personnel, control of epidemic diseases, and, above all, the provision of clean water supplies, sanitary services and eradication of malnutrition.[8]

The poor has received hardly any public sector attention and slum areas without public utilities and sanitation have mushroomed. Development of an efficient public transport system has been grossly neglected causing great hardship to the poor who have no transport facilities of their own.

"Yet, all the while, considerable lip service is paid to Islam and its imperative of socio-economic justice. This sorry state of affairs is bound to perpetuate slower growth and economic inequalities, thus accentuating social tensions and unrest"(Ibid.).

It is therefore necessary for Muslim governments to restructure their spending in a way that enables them to concentrate more on projects that will help accelerate development and realize the maqasid.

The absence of a serious effort on the part of governments to utilize their limited resources more efficiently is due to a number of reasons (Ibid.).

Firstly, there is a lack of realization that the resources at their disposal are a trust from God. This misconception, along with the expensive life-style of government officials, has contributed to corruption.

Secondly, the absence of an indigenous development philosophy worked out with sensitivity to the country's own resources and values has led to the absence of well-established priorities.

"Without the establishment of such priorities it is not possible to set up agreed criteria for judging the 'essential' from the 'inessential', and the 'productive' from the 'wasteful', use of resources. Unless a long-term commitment is made to an Islamic development philosophy, it may not be possible to remove the existing confusion and conflict in policies"(Ibid.).

Thirdly, the price system has not been used and resources, particularly foreign exchange resources, are acquired sold by governments and public enterprises at less than their opportunity costs. This contributes to inefficient use of resources.

Fourthly, the absence of an elected parliament and a free press deprives the public of a forum for criticism of government policies. This problem cannot be cured without establishing legitimate governments that are accountable to the people.

In defining the fundamental conceptual and practical prerequisite basis for achieving sustained development, illustration is focused on the main challenge facing most decision-makers in the Islamic world in order to effectively formulate, integrate and implement multi-sectoral sustainable development strategy and policies.

This requires coordination and consultation between government institutions, as well as complementary and coherence between policy instruments being implemented by different ministries.

The strategy should also be based on the practical system related to programme planning and budget integrated process with monitoring and continued performance evaluation as will be subject to more illustrations in this paper.

Linkages between local-national-regional-global sustainable development initiatives need to take into consideration the social, economic, political and cultural sensitivities that are specific to each area. This is particularly important for Islamic countries given the need to encourage and adopt locally grown approaches to sustainable development that are innovative, appropriate, gradual and applicable to the region.

2.3 Principles of Spending with relation to Islamic human wellbeing

Commitment to Islamic values and the maqasid should help on all four counts. The maqasid will in particular help reduce the existing arbitrariness in government spending decisions by providing the criteria for establishing priorities. The maqasid could be further reinforced by adhering to the broad principles adapted from the legal maxims developed over the centuries by Muslim jurists to provide a rational and consistent basis for Islamic jurisprudences (Muneeza2014).

I. The principal criterion for all expenditure allocations should be the well-being of the people.

2. The removal of hardship and injury must take precedence over the provision of comfort.

3. The larger interest of the majority should take precedence over the narrower interest of a minority.

4. A private sacrifice or loss may be inflicted to save a public sacrifice or loss, and a greater sacrifice or loss may be averted by imposing a smaller sacrifice or loss.

5. Whoever receives the benefit must bear the cost.

6. Something without which an obligation cannot be fulfilled is also obligatory.

These maxims have an important bearing on taxation and government spending in Muslim countries. To clarify some of their implications for government expenditure programmes, it may be helpful to consider the following practical requirements.

Since general well-being has to be an essential objective of all public spending, all physical and social infrastructure projects, which help realize this objective through accelerated economic growth, job creation and need fulfillment, should be given priority over those that do not make such a contribution. Among the indispensable infrastructure projects, the preference should be directed to projects that would help remove the hardship and suffering caused, for example, by the prevalence of malnutrition, illiteracy, homelessness and epidemics, and lack of medical facilities, clean water supply and sewage disposal. Similarly, the development of an efficient public transport system should acquire priority. The priority projects should be included within the strategic programme planning.

While the highly skewed income distribution enables the rich to transfer scarce resources for the satisfaction of their unnecessary wants. This not only squeezes the resources available for need satisfaction but also widens the savings-investment and export-import gaps and worsens the macroeconomic and external imbalances. Reliance on merely the price mechanism as a filtering device does help restore equilibrium between demand and supply but at the expense of the poor, who are unable to fulfill their needs at the resulting higher prices from the limited means they have at their disposal. Their well-being thus suffers.

Centralizing control over the allocation of resources into the hands of a bureaucracy which does not have an effective way of getting information promptly about consumer preferences and producer costs, makes the decision-making process cumbersome, slow and inefficient. The bureaucracy does not even have the socially-agreed values or the motivating system to ensure the well-being of all.

The resultant allocation and distribution of resources is hence bound to be neither efficient nor equitable.

3. Towards A New Monetary and Banking Mission

Recently continued international periodical economic, banking and financial crisis impacted to a painful extent all human being, including the Arab and Islamic countries[9]. These crises resulted mainly from the capitalistic Monetary and Banking sector designed structure and resulting institutional and legal framework which are still subject to these sector inhuman practices for human beings. Therefore restructuring and reforming this sector nationally, regionally and internally should be approached with Central Banks leading the whole new scenario, which pave the road in cooperation with other integrated institutional and legal fundamental basis.

While designing the new role and required infrastructure for the new Finance and Monetary mission, special focus would be highlighting the vital role played by Islamic Banking nationally, regionally and internationally as well as the realized contributing role of Ethical considerations in the reallocation of financial resources to more socially responsible areas and contributing to greater social well-being (ISLAMIC FINANCIAL SERVICES INDUSTR DEVELOPMENT 2007).

The sustained growth of the sector throughout the financial crisis is seen as a sign of resilience and of ongoing relevance to customers worldwide. Islamic banking remains the core of the Islamic financial services industry. It is estimated that 73% of total Islamic finance assets worldwide are banking assets. Nearly three-quarters of the industry's assets, therefore, are in the banking sector.[9]

We have been living in the recent years witnessing a central Banking role while functioning within a traditional mission in conformity with the traditional concepts of Economic, Money and banking sciences and the traditional authority in organizing, supervising banking and financial sector and formulating the implemented monetary policies which constitute the cornerstone of its role as directed to achieve economic and monetary stability (Ibid.).

International Financial and Monetary Institutions have been shaped and institutionally structured on the conventional objectives of Monetary policies and related main role of central banks as shown in the latest following advice as resulted from the last concluding IMF consultations to the Iranian Authorities and Central Bank and aiming at enhancing the ability of the central bank to safeguard price stability.

"The proposed Central Bank Bill correctly places price stability as the core objective of monetary policy. However, the proposed governance structure of the CBI is complex and decision making

committees are dominated by representatives of other government agencies. To enhance the ability of the CBI to pursue its inflation objective independently, staff recommends that the number of governing bodies be streamlined and membership limited to senior CBI officials and/or independent experts. Greater transparency and alternative reporting mechanisms can be explored to ensure the CBI remains accountable for implementation of its inflation objective. The central bank will also require instruments to intervene and manage liquidity to guide interest rates. The authorities should start issuing appropriate instruments, for example government bonds or central bank paper, for this purpose and allow for the possibility of an emergency liquidity."(IMF Concluding Statement of an IMF Staff Visit, Iran, October3, 2016).

This is the traditional role of central banking being played while at the same time a documented revolution of the economic sciences –as illustrated before - have been emerging during the last quarter of twentieth Century, that is known as the economics of happiness which integrated the economic science tools with psychology science tools in order to approach human happiness and wellbeing (Bruno 2008).

"In 2015, eight years on since the eruption of the crisis, the central banking community still faces many difficulties and challenges as it surveys possible exit strategies from their current policy stances and grapples with the possible medium-term impacts (FUNDAMENTALS OF CENTRAL BANKING 2015).

Newly emerging thought about the need for a new role for central banks and monetary policy in light of the last world economic and financial crisis and related studies. In light of the crisis and the subsequent policy responses, important questions have arisen as to the proper roles, duties, and obligations of central banks in the years ahead.

The central banking thought began to question a new role to be delineated which empower central banks to play mor active role in achieving sustained development with the environment pillar, as well as the sustained wellbeing instead of just sustained economic growth and began to be caring about medium and long-term monetary policy impacts.

Climate change and other environmental challenges are moving up policy agendas worldwide. Nonetheless, the potential implications of environmental risks and scarcities for central banking as well as the linkages between financial regulation, monetary policy and environmental sustainability remain largely unexplored. Against this background, the Council on Economic Policies (CEP) and the Bank of England (BoE) organized a workshop on Central Banking, Climate Change and Environmental Sustainability, on November 14-15, 2016 at the Bank of England in London, UK. The event planned to join together researchers from academia, central banks, and other nonacademic research institutions. It is part of a larger CEP program on monetary policy and sustainability (http://www.cepweb.org/wp-content/uploads/CEP-BoE-Call-for-Papers-2016.pdf)

It should be noted that despite the rapid growth of Islamic finance and the available opportunities for its sustained flourishing, Islamic finance is still a nascent industry in most countries and has not yet achieved a critical mass or the strategic focus needed for an effective recognition of its unique operational features in the national policy-making process. Therefore, Islamic international infrastructure institutions can and should play a key catalytic role in promoting the industry at the national level (ISLAMIC FINANCIAL SERVICES INDUSTR DEVELOPMENT 2007**)**.

3.1 Monetary Policy Role in Approaching Wellbeing. Financial Sector Social Role

The published document which formulated the ten year framework and strategies for the Islamic financial services industry development gave a special priority to the Islamic industry role towards poverty reductions and improvements and rightly stated;

"The critical and persistent issues of poverty reduction and improvements are important aspects of human welfare such as health and education, reducing child mortality, youth insecurity and restlessness, and so on, face every society today whether at the local, national, regional or international level. The financial intermediation system must play a vital role in alleviating these perennial human development problems and in achieving economic development by efficiently channeling financial resources towards productive opportunities, hence enhancing production, investment and trade activities**"(** Ibid.).

3.2 Basis for Restructuring the Financial Sector

Financing - as mentioned before – is believed to be a powerful political, social and economic weapon in the modem world, and no socio-economic reform can be meaningful unless the financial system is also restructured in conformity with the socio-economic goals of the society, therefore the restructuring should be comprehensive enough to enable the financial institutions to make their full contribution towards the removal of imbalances, and towards the equitable as well as efficient intermediation of financial resources8.

Corruption should be one of the main key objectives when formulating the restructuring strategy of the financial sector. Islamic countries recent financial developments strongly highlighting this need as reflected in Pakistan experience.9

3.3 Financing the Green Economy

Within the context of sustainable development, effective principles for the green economy already existed, but they needed to be faithfully implemented in order to promote new jobs, markets and technology, and to achieve sustainable development.

The Deputy Secretary-General of UNCTAD, in his closing remarks, stated that "The world may actually be in pre-crisis mode, as greater challenges could yet emerge in the form of climate change and environmental crises. This would require countries to accelerate their transition to a green economy. In that context, further research was needed on the issue of subsidies and incentives for industrial transformation, and on finding a commonly accepted price for carbon. Proposals were made for a financial transaction tax to finance a climate-change adaptation fund and for the use of public–private partnerships to leverage private-sector innovation and expertise with initial support from the State. Calls for a stronger State in developing countries was also made"(Unctad2011).

3.4 The Unconventional Central Banking Mission

Recent research works gathering some central banks from the developed countries such as Bank of England (BoE), Federal Reserve system of U.S and European Central Bank ECU discussing the new role of central banks with an evaluation of monetary policy from a broader, ethical perspective as well as their role with relation to subjective human wellbeing determinants including social aspects of human development, as income redistribution policies adopted by the public policies.

Such researches began to discuss the feasibility of a new approach to central banking role and monetary policy and how inequalities could thus be factored into monetary policy towards achieving social and environmental goals other than just financial stability and anti-inflationary policies.

The discussion about this new mission for central banks has been subject to strong adopted contradicted views. They are divided between supporter to the role of Monetary Policy in approaching the inequality of income within the society towards achieving social and environmental goals and other than just financial stability and anti – inflationary policies, and those who are against this new proposed mission for central banks (Dietsch& Fontan& Claveau 2016).

"The BoE (Bank of England" is by far the most progressive, explicitly acknowledging the importance of equality"(Ibid.).

"The Fed adopts a “sufficientarian” stance, that is, a position underlining the importance of everyone reaching a minimum standard of living; this is manifest in the Fed’s emphasis on the importance of fighting poverty and unemployment. Representatives of the ECB, meanwhile, do not say anything that would suggest a commitment to containing inequalities for its own sake” (Ibid.).

These studies discussed all aspects related to the changes of direction for central banks objectives and priorities between those objecting on proceeding towards unconventional role towards subjective wellbeing as this standard line of central banks “unintended consequences "of their monetary policy fall outside their mandate and contradict with the available instruments of

monetary policies, while this is available for other public policies (economic, trade and financial). The other part who calls for unconventional monetary policy towards a new central banking role justify un-neglected aspects of development including the environmental pillar, inequalities impact of monetary policies.

From a normative point of view, central banks might care about inequalities for intrinsic reasons containing inequalities has value in and of itself – or for instrumental reasons, because inequalities have a negative impact on their current objectives.

"Even if central banks were not able to be sensitive to inequality concerns in 2008 because the stability of the financial system was at stake, this does not absolve them of the duty to work towards a scenario where they can show such sensitivity in the years following the 2008 crisis (Ibid.).

It should be stressed that no role or mission could be achieved for central banks without approaching the precondition requiring a strong supporting political will, and required changes in the central banks mandates10.

4. Sound Islamic Governance for Finance -Legal Framework

It is worth referring to the Malaysian adopted legal aspects of Islamic Shariah Governance as represented by" The Islamic Financial Services Act (IFSA) 2013" applied for Islamic Banking and Finance.

It can be stated that Shariah governance is the back born of every Islamic bank and it is vital to regulate Shariah governance for (the coherence of Islamic banking industry. Malaysia has taken a gradual approach in developing Shariah governance. The latest development of Shari'ah governance in Malaysia is found in the new IFSA 2013 which planned to be effective from 30th June 2013 (Muneeza2014).

It shall be noted that IFSA 2013 has brought positive changes and have legalized number of Shariah governance principles in the form of statutory duties. This is indeed a remarkable move. It is anticipated that the success and the practicality of the changes enumerated in IFSA 2013 will be only evident once it is practically followed. But as for now all that can be said is that IFSA 2013 will bring revolutionary changes to Shariah governance aspects and the whole world can learn from this experience of Malaysia.

Corporate governance is defined as the process and structure used to direct and manage the business and affairs of the institution towards enhancing business prosperity and corporate accountability with the ultimate objective of realizing long-term shareholder[10], whilst taking into account the interests of other stakeholders (Ibid.).

"It is imperative to understand that over time Shari'ah governance has expanded to form a full-fledged term of Shari'ah corporate governance that includes Shari'ah auditing, Shari'ah review, Shari'ah research, Shari'ah compliance, Shari'ah risk management and etc compelled the author to call it Shari'ah corporate governance"(Ibid.).

This new piece of legislation also brought " a new revolution to the existing practices of Shari'ah governance in the sense that it makes mandatory things that were not obliged before. Some of the best practices that have been followed are now made as part of law strengthening the application of Shari'ah governance, the backbone of Islamic banks" (Ibid.).

Then, came the Corporate Governance Guidelines for Licensed Islamic Bank (GP1-i) that was formulated to advance the espousal of effectual and high standards of corporate governance practices by Islamic bank and Islamic bank holding companies and it sets out extensive principles and minimum standards and specific requirements for sound corporate governance. It adopts the definition of the corporate governance given by Finance Committee Report on Corporate Governance, February 1999.

The principles enshrined in the guideline are based on the concepts of responsibility, accountability and transparency, with greater accentuate on the function of the board and the management. There are fourteen principles laid down by the guideline.

Corporate matters other than those related to Sharia's Committee of Islamic banks are regulated by the conventional laws of the country; that is by the Companies Act 1965.

However, certain guidelines were formulated by the Central Bank (Bank Negara Malaysia) to sustain and build Shari'ah corporate governance in Malaysia.

"IFSA 2013 provides for the regulation and supervision of Islamic financial institutions, payment systems and other relevant entities and the oversight of the Islamic money market and Islamic foreign

exchange market to promote financial stability and compliance with Shari'ah and for related, consequential or incidental matters.[11] IFSA 2013 consists of 291 sections with 16 schedules. This legislation is a comprehensive legal framework to regulate Islamic finance in Malaysia" **(Ibid.).**

5. Basis for International Economics and Finance Reform

Objectives of International system Reform

Reform of the International system must have as its goal the better functioning of the world economic system for the global good. This entails simultaneously pursuing long term objectives, such as sustainable and equitable growth, the creation of employment in accordance with the "decent work" concept, the responsible use of natural resources, and reduction of greenhouse gas emissions, and more immediate concerns, including addressing the challenges posed by the food and financial crises .

The unjust economic, financial and trade relations for the developing counties is another motivation for the required global social solidarity if the world economic, monetary and financial system is rebuilt to immune from crisis, instability and periodic flows of capital and financial assistance and by then world community wellbeing could be approached effectively .

Developed countries must make a renewed effort to meet the commitments made in the Millennium Declaration towards supporting the developing countries in the fields of economic, finance and trade relations.

Conclusion

The preceding analytical sequence is directed towards a new required mission for the public finance and banking sectors with relevance to the recent economic revolution producing happiness economics. The course of this analysis resulted in paving the road for the required new role of Public Finance Authorities and Central banks as leadership for fiscal and monetary policies approaching subjective human wellbeing instead of just accumulating income and wealth while neglecting many human happiness bases including morality, religious, environmental, ethical, social aspects of humanity such as inequality of income and poverty.

Subjective happiness as identified concept should be the main objective for the public finance sector and the central banks. It is also believed that a new role of international financial system should be objected for approaching just international economic and financial cooperation

A newly created regulatory environment and mission will place the fiscal and monetary system**s** within the national, regional and international sphere on the human track. Building the required instructive technological environment can lead to new and favorably better financial services. Sharia corporate governance for banks and financial non-banking institutions should be reached as defined to be the way in which a corporation is directed, managed and controlled through the application of Shariah law or in a manner that is consistent with Shariah law.

In the modern world – as mentioned before - application of conventional corporate governance principles to Islamic Financial Institutions, not all of the conventional practices are rejected; but rather, an additional layer of corporate governance principles derived from Shariáh law is added to the existing layer of it.

At this end it is worthy referring to the conclusion of a decent study on The Role of Islamic Finance in Enhancing Financial Inclusion in Organization of Islamic Cooperation (OIC) Countries, published by the world bank Islamic Economics and Finance Working Group which resulted in; "The paper concludes that Islam offers a rich set of instruments and unconventional approaches, which, if implemented in true spirit, can lead to reduced poverty and inequality in Muslim countries plagued by massive poverty. Therefore, policy makers in Muslim countries who are serious about enhancing access to finance or "financial inclusion" should exploit the potential of Islamic instruments to achieve this goal and focus on improving the regulatory and financial infrastructure to promote an enabling environment" (Mohieldin&Iqbal&Rostom&Xiaochen 2011)

If our focus directed to the role of fiscal and monetary policies and proved to have effective role in approaching human wellbeing as concluded in this research paper, then the argument yield a conclusive argument for a change in the current adopted fiscal and monetary policies and should be reflected in a modification and reform of the Institutional and legal governing system.

Acronyms and Abbreviations

BoE: Bank of England.
CBI: The Central Bank of Iran.
Dawlah or civilization: state (**'umran)**

Notes and References

Notes

[1] This paper draws heavily on the thoughts and analytical work which is finalized by the author for a Book on " Approaching Happiness Economics within the World Challenges - The Conceptual and Practical Basis - Case Study on the Role of Islamic Economics" and the dedicated chapter on "The role of Public Finance and Banking. To be published in 2017 by Emerald Publishing International U.K &U.S.A.

[2] This holistic approach to happiness economics is adopted by the current author in his above-mentioned book under performance for planned publishing in this year (2017) by Emerald Publishing limited. .

[3] Objective wellbeing indicators capturing varied dimensions of economic, social, and environmental well-being of the targeted communities. Focusing on subjective indicators of quality of life involve other indicators such as community residents' satisfaction with life overall, satisfaction with various life domains (e.g., life domains related to social, leisure, work, community, family, spiritual, financial, etc.), as well as satisfaction with varied community services (government, nonprofit, and business services serving the targeted communities) and political system structure and practices.

[4]ASADZAMAN in his research " Towards A New Paradigm for Economics" of the *International Institute of Islamic Economics*, *International Islamic University Islamabad, Pakistan*

[5]Ferdinand Hunnj, initiated born, Munich, Vienna, Zurich, Encyclopedia of the social market, economic policy, from A to Z, Rolf Hussey, Herman Schneider, Klaus Vigelt (Publishers), the second edition was translated into Arabic in 2005 d. Yasser Sarah. Commissioned by the Konrad Adenauer Foundation.

[6]Islamic countries are defined in this paper to include members of Organization for Islamic Countries (OIC).

[7]Maqasid: Islamic Shariah objectives which are to promote the welfare of the people. Which lies in safeguarding their faith, their life, their intellect, their posterity and their wealth? Whatever ensures the safeguarding of these five serves public interest is desirable. The basis of the Shari'ah is wisdom and welfare of the people in this world as well as the Hereafter. This welfare lies in complete justice, mercy, well-being and wisdom. Anything that departs from justice to oppression, from mercy to harshness, from welfare to misery and from wisdom to folly, has nothing to do with the Shari'ah. (http://ibfd-fund.com/docs/Islam%20and%20the%20Economic%20Challenge.%20Umer%20Chapra.pdf).

8 This section is derived from the speaker performed volume as editor for "The Developing Role of Islamic Banking and Finance: From Local to Global Perspectives. Contemporary Studies in Economics and Financial Analysis – Volume 95 (U.K and U.S.A, Emerald Group Publishing Limited, 2010).

9Tibor Mende wrote in 1955 that: "Probably no other symptom of Pakistani public life has contributed to the demoralization of the 'common man' more than corruption." Illicit practices had reached such proportions that "their effect is likely to wipe out whatever benefits new economic projects might have secured for him".'

(M. UMER CHAPRA (1995) Islam and the Economic Challenge, The Islamic Foundation and The International Institute of Islamic thought, 1416 – 1995) Retrieved from; http://ierc.sbu.ac.ir/File/Article/Islam%20and%20the%20Economic%20Challenge_93524.pdf

[10]The Author of this paper attended The Bank of France (Central Bank) Celebration memorizing his inception before 100 Years (Paris, May 1999).A seminar was following the inaugural celebration and presided over by the Prime Minister and attended by many governors of central banks from many countries of the world .The seminar concluded that Independence of Central Banks should be guaranteed in order to design freely monetary policies as authorized by the country's population. Only in this case economic, social and also political stability could be achieved.

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QUALITY AND ACCESSIBILITY OF INFRASTRUCTURE AND MANUFACTURING EXPORTS IN EGYPT: FIRM LEVEL EVIDENCE

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Abstract

This paper aims to investigate the effect that infrastructure quality and accessibility have on the extensive and intensive export margins of manufacturing firms in Egypt. Empirical literature often focuses on infrastructure variables from a macro-level approach using static and dynamic panel data models, spatial econometrics, as well as bilateral trade flow and gravity models to measure the impact that infrastructure has on export performance.

Two main problems occur when attempting to use the macro-level analysis. On one hand, few countries have macro-data that are reliable enough to produce solid and robust results. In the case of Egypt, infrastructure indicators are available; however, variation over time is very limited for the majority of them; which leaves no room for panel analysis justification. On the other hand, macroeconomic indicators do not count for regional variations; neglecting the role of local governance and assuming that infrastructure quality is indifferent across regions.

Using firm-level data from the World Bank's enterprise survey for the years 2007, 2013 and 2016, we attempt to link Egyptian firms' heterogeneity in productivity and characteristics related to the access to infrastructure such as transport, customs, telecommunication, power generation and water and sanitation, with their trade performance. First, the paper estimates the impact of the level of infrastructure on firm productivity. In a second step, the paper evaluates how this heterogeneity in productivity translates into different export performances.

Results suggest that quality and access to infrastructure have significant effects on export volumes, stronger in the case of private firms. Being a large firm, increases resilience against the growth of access to power and water, as obstacles to exporting over time. Owning an electricity generator also seems to have a significant positive impact on exports. Moreover, results show discrepancies of infrastructure quality across regions, implying the importance of local authorities in maintaining and enhancing infrastructure quality and accessibility.

The paper will start with an introduction followed by a review of theoretical and empirical literature. Section three presents stylized facts and section four discusses data, methodology and econometric issues. Findings from different estimations are in section five and lastly, section six concludes with recommendations.

Key words: Infrastructure, exports, heterogeneity, productivity, Egypt

JEL Classification: D22, F14

ECONOMIC EXPOSURE OF STOCK RETURNS: AN INVESTIGATION THROUGH MULTIFACTOR MODEL

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Abstract

There is a long history about the determinants of stock returns in the empirical capital market literature. The literature suggests that different variables are important in explaining the variations in stock returns beyond a single market factor. In addition to the traditional equilibrium based Capital Asset Pricing Model, a number of multi-factor asset pricing models has been developed. These models are based on the assumption that the stock returns are influenced by a limited number of economic variables or factors. The objective of this study was to examine the stock returns variation to specific macroeconomic and industry variables by applying multi-factor model. Firms of Banking Industry were selected for this study on the basis of data availability, profitability and performance on the Pakistan Stock Exchange. The data for the selected firms and economic variables obtained for the period of 10 years from 2007 to 2016. Data was collected from different sources including published reports and websites of stock exchange and State Bank of Pakistan. Descriptive statistics performed for the temporal properties and GARCH model was used to analyze the risk and return relationship. The tests were applied on the stock returns of each firm and on the data set of the entire industry to generalize the results. The results reveal that market return is largely accountable for the stock returns variation, however the inclusion of other macroeconomic and industry related variables has added additional explanatory power in describing the stock returns variation. It is also found that industry stock returns are more responsive to changes in economic conditions than firm level stock returns.

Key Words: Stock Market, Stock Returns, Macroeconomic Variables, Banking Industry, Multifactor Model

EFFECTS OF REAL EFFECTIVE EXCHANGE RATE VOLATILITY ON TOURIST FLOWS INTO TURKEY

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Abstract

In this study, by using the monthly data, the relationship between real effective exchange rate volatility and the number of tourist flows to Turkey was examined for the period between the first month of 2012 and 6th month of 2017. For volatility modeling, the most suitable model in terms of Akaike information criteria was determined to be EGARCH (3.3) volatility model, and it was used in obtaining volatility (VOL) series to be used in present study. The stationarity analysis of variables was performed using ADF and PP tests. Moreover, the data of 2016 were added into this study as dummy variable. The reason of this is the increase in number of terrorist attacks in both Turkey and the world. The added dummy variable was found to be statistically significant in ARDL model that was established. Since the variables are stationary at various levels, the Bounds test was used for cointegration relationship. According to the results of Bounds test, a cointegration relationship was found between the variables. But, however, the coefficient of long-term volatility variable was found to be statistically non-significant. In the model established for examining the short-term relationship, the error correction coefficient was calculated to be -0.259. This means that, after the shocks in short-term, 25.9% of the deviations from the long-term balance can be eliminated in the next period or the correction process is approx. 3.84 periods. It was determined that the real effective exchange rate volatility has no long-term effect on the number of tourists visiting Turkey. The fact that the tourists visiting Turkey make their reservations before suggests that the effect arising from the uncertainty in exchange rates could be eliminated.
Keywords: Tourism, Volatility, Time Series, Bounds Test

1. Introduction

In a country such as Turkey, which is a developing country and has tourism supply, the foreign currency incomes from tourism sector prevent the current accounts deficits from reaching at much higher levels. In Turkey, the tourism sector acts as a medication recovering the foreign trade deficits of our country. According to the data published by TÜRSAB, Turkey's tourism incomes' rate of recovering foreign trade was 49.73% in 2015 and 39.48% in 2016. These data indicate that Turkey needs tourism income for meeting the foreign trade deficits. Table 1 below shows the number of tourists and tourism incomes of Turkey for the period between 2003 and 2017.

According to the data in Table 1, a significant decrease was observed in the number of tourists and tourism incomes of Turkey since 2014. The number of tourists is influenced by the factors such as tourism opportunities, global economic events, terrorist events, political relationships between the countries, prices of touristic products, and exchange rates. The political crisis with Russia in the year 2016 caused a remarkable decrease in number of tourists coming from Russia.

In literature about the relationship effects of exchange rate and exchange rate volatility on exports, there are many studies. As the commodity exports, the tourism also is a service export that creates foreign exchange supply and influenced by the exchange rates. The changes in exchange rate pose a risk and thus the tourism, which is a service export, is influenced. In the present study, the relationship between the exchange rate volatility and the number of tourists is discussed within the frame of monthly

data between 2012M1 and 2017M6, and the effects of exchange rate volatility on the number of tourist flows to Turkey was examined.

Table 1.Number of Foreigner Visitors and Tourism Income

Year	Number of Foreigner Visitors	Tourism Income (000 $)
2003	13 701 419	10 141 116
2004	17 202 996	13 061 118
2005	20 522 621	15 725 813
2006	19 275 948	13 918 757
2007	23 017 081	15 936 347
2008	26 431 124	19 612 296
2009	27 347 977	19 063 702
2010	28 510 852	19 110 003
2011	31 324 528	22 222 454
2012	31 342 464	22 410 365
2013	33 827 474	25 322 291
2014	35 850 286	27 778 026
2015	35 592 160	25 438 923
2016	25 265 406	15 991 381
2017*	11 447 325	6 780 430

Source: TurkStat Departing Visitors Survey
* Sum of first two quarters

The rest of this paper is arranged as follows. In Section 2, the previous studies are presented. In Section 3, the model specification and the data used are explained. In Section 4, the econometric methods used and the empirical results are presented. Finally, in Section 5, there is a summary of findings.

2. Literature Review

In literature, there are many studies examining the relationship between exchange rate volatility and number of arriving tourists. In study of Crouch (1994), it was reported that the exchange rate has significant effect on estimating the tourism demand.

In 2001, Weber examined the relationship between entertainment tourism of foreigners and exchange rate volatility in Australia by using quarterly data between first quarter of 1983 and last quarter of 1997. As a result of the study, it was determined that the exchange rate volatility changed the opinion of 40% of cases about having holiday in a specific country. Moreover, the changes in exchange rate were found to have an effect on selection of touristic destination, just like the effects of relative prices. Agiomigianakis et al. (2014), in their study on examining the relationship between tourist flows into Turkey and exchange rate volatility between 1994 and 2012, determined a negative relationship between these two variables. The authors, in their study carried out in 2015, examined the relationship between the exchange rate volatility and tourists flows into UK and Sweden. As a result of the study, they reported that, for both countries, there was a negative relationship between the exchange rate volatility and tourist flows.

In study of Demirel et al., which was carried out in 2008 by using quarterly data between first quarter of 1994 and last quarter of 2006, it was determined that the changes in real exchange rate were significant only for the USA, whereas the current rate had effect for England and France. In that study, the authors found that the changes in real exchange rates negatively affected the number of arriving tourists. From the aspect of uncertainties in real exchange rates, the real exchange rate uncertainties had no effect on the number of arriving tourists, except for France. This also suggests that the arriving tourists are in fact not interested in the change and uncertainty in real exchange rates.

3. Model and Data

In the present study, the model established for examining the relationship between the number of arriving tourists and the real effective exchange rate volatility for Turkey is presented in Eq. (1).

$$LNTN_t = a + bVOL_t + \mu_t \qquad (1)$$

In the analyses, the monthly data covering the period between first month of 2012 and 6th month of 2016 were used. The variables used in the present study were adjusted from the seasonality by using Census-X13 method, and the logarithm obtained was used. The year 2016 was a year, in which the number of terrorist attacks increased in both Turkey and world and they occurred in points that affect the travels of peoples such as İstanbul Atatürk Airport and Belgium airport. Thinking that this would change the travels of people, this variable was involved into the model as dummy variable. The info about the variables is given in Table 2.

Table 2. Variables used in Present Study

Abbreviation of Variable	Definition	Period	Source
LNTN	Tourist Number	2012M1-2017M6	TURKSTAT
VOL	Real effective exchange rate volatility	2012M1-2017M6	Our own calculation using EGARCH method
D_2016	Dummy Variable	Year 2016	Year 2016 was added due to the terrorist events.

In order to determine the volatility series, the real effective exchange rate series obtained from the database of Bank of International Settlement was used. The most appropriate ARMA model was selected using the data in Table 3 according to AIC information criteria.

Table 3. ARMA Criteria Table

AR / MA	0.000	1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000
0.000	4.244	4.371	4.440	4.509	4.577	4.498	4.558	4.574	4.644
1.000	4.372	4.439	4.428	4.495	4.549	4.545	4.609	4.644	4.714
2.000	4.440	4.422	4.387	4.565	NA	4.597	4.658	4.712	4.782
3.000	4.510	4.485	4.561	4.505	4.571	4.640	4.681	4.634	4.790.
4.000	4.572	4.529	4.509	NA	NA	NA	4.614	4.657	NA
5.000	4.628	4.675	4.655	4.638	4.604	4.670	4.706	4.692	4.759
6.000	4.678.	4.733	4.723	4.692	4.675	4.801	4.721	4.757	4.819
7.000	4.710.	4.616	4.647	4.727	4.716	4.774	4.860	4.795	4.819
8.000	4.777	4.683	4.715	4.762	4.753	4.861	4.869	4.825.	NA

Estimating the appropriate ARMA model, the ARCH-LM test was performed. According to the test results in Table 4, the presence of ARCH effect on the series was determined.

Table 4. ARCH-LM Test

F-statistic	1.676	Prob. F(1,63)	0.000
Obs*R-squared	4.724	Prob. Chi-Square(1)	0.000

The main limitation of Standard GARCH model is that it ignores the asymmetric characteristics of time series suggesting the possible asymmetrical effect of positive and negative shocks on the volatility.

In order to reflect the asymmetrical characteristic of time series, Nelson (1991) developed the EGARCH models. Nelson uses an exponential function form; this form is presented in Eq. (2).

$$log h_t^2 = \alpha_0 + \sum_{i=1}^{q} \alpha_i \left(\frac{u_t - i}{h_t - i}\right) + \sum_{i=1}^{q} \alpha_i^* \left(\left|\frac{u_t - i}{h_t - i}\right| - \mu\right) + \sum_{i=1}^{p} \emptyset_i \, log h_{t-i}^2 + \delta' w_t \qquad (2)$$

The EGARCH (3,3) results calculated for exchange rate parameter within the scope of the model developed by Nelson (1991) are presented in Table 5.

Table 5. Parameters of the Conditional Heteroscedastic Model

Coefficient	Asymptotic
Constant	-13.512
(E/H)(-3)	-0.185
ABS(E/H)(-3)-MEU	0.633
LOG(H-SQ(-3))	-0.765

Notes: H stands for the conditional standard error of the error term. E stands for the error term. MEU stands for the expectation of the absolute value of the standardized disturbance term. MEU = SQRT(2/3.14159) = 0.797

The square root of contingent variances estimated form the results of EGARCH (3.3) method (the contingent standard deviations) are used as the exchange rate volatility variable.

4. Method and Empirical Results

4.1 Unit Root Test

In order to test the stationarities of variables in the present study, the ADF (Augmented Dickey-Fuller) and PP (Phillips Perron) unit root tests were used. The results of ADF and PP tests are presented in Table 6 below. The null hypotheses of ADF and PP tests are that the series have unit root.

Table 6. Results of ADF and PP Unit Root Tests

Unit Root Test			VOL	LNTN
ADF	Constant	Level	-3.529**	-1.763
		1st Diff.	------	-8.332*
	Constant and Trend	Level	-3.666*	-2.768
		1st Diff.	------	-8.456*
PP	Constant	Level	-3.476**	-1.972
		1st Diff.	------	-8.334*
	Constant and Trend	Level	-3.624*	-2.220
		1st Diff.	------	-8.433*
			Critical Values	
Significance level		1%	-3.548	-4.124
		5%	-2.912	-3.489
		10%	-2.594	-3.173

* indicates significance level of 1%
** indicates significance level of 5%
*** indicates significance level of 10%

According to the result of ADF and PP unit root tests, the variables are stationary at various levels and none of them is stationary at second level. According to the results of ADF and PP tests, LNTN is I(I) and VOL is I(0).

4.2 Cointegration test

In literature, the Bounds test developed by Paseran, Shin, and Smith (2001) is used in order to examine the cointegration relationship between the variables that are stationary at various levels but not stationary at second level. In the present study, none of the variables was stationary at second level, but all of them were stationary at various levels. For this reason, the cointegration relationship between the variables was examined using the Bounds test. For the Bounds test, the unlimited error correction model (UECM) should be used at first. The version of UECM modified to present model is presented in Eq.3 below.

$$\Delta LNTN_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i}\, \Delta LNTN_{t-i} + \sum_{i=1}^{p} \alpha_{2i} \Delta VOL_{t-i} + \alpha_3 LNTN_{t-1} + \alpha_4 VOL_{t-1} + \mu_t [1] \quad (3)$$

In order to test the presence of cointegration relationship, F test is applied to first period lags of dependent and independent variables. For this test, the null hypothesis is established as (H0:α3=α4=0), and the calculated F statistics is compared to the lower and upper critical values in the table in the study of Pesaran et al. (2001). When calculated F statistic is compared to the lower critical values in the table, there are three possibilities. If calculated F statistic is lower than the lower critical value in the table, then it means that there is no cointegration relationship. If the calculated value is between the lower and upper critical values in the table, then it means that there is no possible interpretation regarding the cointegration relationship between the variables. If the calculated value is higher than the upper critical value, then it means there is a cointegration relationship. In this case, the null hypothesis that there is no long-term relationship between the variables is rejected (Karagöl, Erbaykal and Ertuğrul, 2007).

In the present study, we took the maximum length of lag as 8. Besides that, the number of lag was calculated to be 1 in accordance with SBC. After the optimal length of lag was determined in accordance with the unlimited error correction model, the Bounds test was used for examining the cointegration relationship between the variables. The results obtained are shown in Table 7.

Table 7. Bounds Test Results

Bounds Test	Critic Values	
F Statistic = 5.709	Bottom Limit	Top Limit
5%	4.94	5.73
10%	4.04	4.78

The F-statistic value of 5.709, which was calculated in this study, was found to be higher than the upper critical value of 4.78 at 10% significance level. This suggests that a cointegration relationship was determined between the variables. After determining the cointegration between the variables, then the long-term coefficients of the model were calculated.

4.3 ARDL Model

After determining the cointegration between the variables, ARDL (Autoregressive Distribution Lag) model shown in Eq. (4) was established in order to examine the long-term relationship between the variables

$$LNTN_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} LNTN_{t-i} + \sum_{i=1}^{n} \alpha_{2i} VOL_{t-i}\, \mu_t \quad (4)$$

[1] Since the trend in ARDL models in this study are insignificant, they were not involved. Thus, trend is not shown in theoretical illustrations.

Table 8. Long-term ARDL Model Estimations ARDL (3,0)

Variable	Coefficient	t-Statistic	Prob.
LNTN(-1)	0.811	6.142	0.000
LNTN(-2)	0.205	1.271	0.208
LNTN(-3)	-0.276	-2.283	0.026
VOL	-0.0003	-1.295	0.200
D_2016	-0.058	-2.364	0.020
C	3.860	3.379	0.0013
Diagnostic Tests		Statistics[Prob.]	
A:Serial Correlation		1.828[0.170]	
B:Functional Form		0.376[0.541]	
C:Normality		12.69[0.001]	
D:Heteroscedasticity		1.046[0.302]	

A: Lagrange multiplier test of residual serial correlation
B: Ramsey's RESET test using the square of the fitted values
C: Based on a test of skewness and kurtosis of residuals
D: Based on the regression of squared residuals on squared fitted values

4.3.1. Long-term Relationship

Long-term coefficients calculated using ARDL (3,0) model are presented in Table 9.

Table 9. Long-term Coefficients of ARDL(3,0) Model

Variable	Coefficient	t-Statistic	Prob.
VOL	-0,001	-1.393	0.169

According to the results of estimations using ARDL model in Table 9, the coefficients of VOL is non-significant at significance level of 5% and 10%. The results in the table indicate that there is no statistically significant relationship between the number of tourists and real effective exchange rate volatility in Turkey.

4.3.2. Short-term Relationship

In order to examine the short-term relationship between the variables, the error correction model based on ARDL approach was established in the form presented in Eq. (5).

$$\Delta LNTN_t=\alpha_0 + \alpha_1 EC_{t-1} + \sum_{i=1}^{n} \alpha_{2i}\Delta LNTN_{t-i} + \sum_{i=1}^{n} \alpha_{3i}\Delta VOL_{t-i} + \mu_4 \quad (5)$$

The estimations about short-term relationship via ARDL method based on the error correction model are presented in Table 10.

Table 10. Results of Error Correction Model based on ARDL (3,0) Approach

Variable	Coefficient	t-Statistic	Prob.
C	3.860	3.408	0.001
D(LNTN(-1))	0.070	0.595	0.553
D(LNTN(-2))	0.276	2.333	0.023
D_2016	-0.058	-2.395	0.019
CointEq(-1)*	-0.259	-3.408	0.001

Given the error correction coefficient, the value of coefficient is negative and statistically significant, as desired. This indicates that the error correction mechanism works. The estimation value of this coefficient is -0,259, which means that, after the shocks in short-term, 25.9% of the deviations from the long-term balance can be eliminated in the next period or that the correction process is approx. 3.84.

4.4. Cusum and Cusumsq Tests

As seen in Figure 1, the results obtained from CUSUM and CUSUMQ tests indicate the model's consistency. As completing the CUSUM and CUSUMSQ tests, it was found that the model's residual were not outside the limits. Moreover, the consistency of parameters was confirmed.

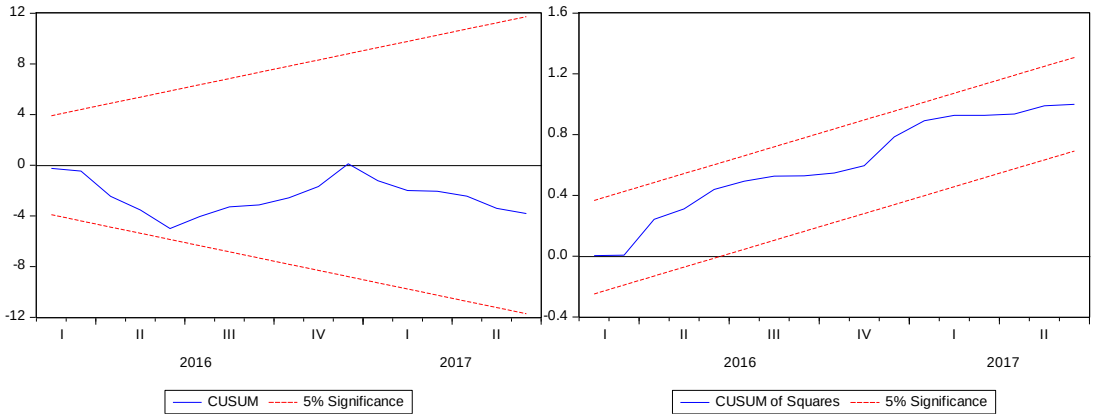

Figure 1. Plot of Cusum of Squares and Cusum Tests

5. Conclusion

In the present study, the effects of volatility of Turkey's real effective exchange rates on the number of arriving tourists were examined using the data of period between 2012M1 and 2017M6. In year 2016, the number of terrorist events increased in both Turkey and worldwide. Considering that this would affect the number of tourists traveling, year 2016 was involved in the model as dummy variable, and the dummy variable in the established ARDL model was found to be statistically significant.

It was determined that the real effective exchange rate volatility has no long-term effect on the number of tourists visiting Turkey. The fact that the tourists visiting Turkey make their reservations before suggests that the effect arising from the uncertainty in exchange rates could be eliminated. Moreover, the crises with Germany and Russia, two important target markets of Turkey, as well as the terrorist attacks towards German tourists and the instability of relationship with neighbor countries create a different environment of uncertainty for Turkey. It can be seen that this aspect should also be examined, because the dummy variable involved in order to investigate the terrorist events was found to be statistically significant.

In the present study, the variables, which can influence the number of arriving tourists visiting Turkey, such as political uncertainty, exchange rate, GDP, and Consumer Price Index were ignored. Our future studies will concentrate on asymmetrical effects and cover these variables.

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GENDER INEQUALITIES IN WAGE EARNING AND EMPLOYMENT AMONG INTERNAL MIGRANTS IN PAKISTAN

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Abstract

In the Southeast Asia, existing literature on migration points out that internal migration is largely towards urban and male-oriented. In Pakistan, the selective internal migration has declined among males, because of the increasing disposition towards internal migration with families. Pakistan Labor Force Survey indicates that rural to urban migration increased from 23.9 percent in 1990-91 to 28.0 in 2006-07. The share of female internal migrants increased in the total long-term internal migrants during 1990-2006. Nevertheless, it declined in total recent internal migrants. Only a few studies have explored research questions related to gender inequalities in the wage-earning and employment for internal migrants in the country-specific context. The present study aims to fill this research gap. It explores three pertinent research questions. Are socioeconomic characteristics of households affecting differently male versus female internal migration? Is pre-existing gender discrimination in the labor market causing gender inequalities in wage earnings and employment for internal migrants? Are economic policies and labor market interventions gender-blind in Pakistan? This article used Linear Probability Models (for analyzing the likelihood of internal migration among males and females). Furthermore, it used Blinder-Oaxaca (1973) decomposition to identify the causes in gender-based wage differentials. Results indicated that male internal migrants earned 3.4 times higher than female internal migrants did in 2014-15 and gendered wage differential tended to be greater in fixed-rate contract jobs. Labor market interventions (setting up of the minimum wage, safety laws etc.) have been gender- blind towards employment of internal migrants in Pakistan.

Key words: Blinder-Oaxaca Decomposition; Gender Discrimination; Internal Migration; Linear Probability Model; Labor Market

RELATIONSHIP BETWEEN ECONOMIC GROWTH AND INFLATION: EXAMPLE OF TURKEY (2003-2016)

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Abstract

In this study, the relationship between inflation and economic growth, in terms of Turkey being studied to determine for the period 2003-2016. The relationship between economic growth rate with inflation rates, regression analysis, method, co-integration analysis and error correction-improved Granger causality tests are analyzed using econometric perspective. Study, Granger causality tests a relationship of causality between the two variables.
Keywords: Inflation, Economic growth, Granger Causality Analysis

EKONOMİK BÜYÜME VE ENFLASYON ARASINDAKİ İLİŞKİ: TÜRKİYE ÖRNEĞİ (2003-2016)

Özet

Bu çalışmada, enflasyon ile ekonomik büyüme arasındaki ilişki, Türkiye açısından 2003-2016 dönemi için belirlenmeye çalışılmaktadır. Enflasyon oranları ile ekonomik büyüme oranı arasındaki ilişkiler, regresyon analizi, VAR yöntemi, eş-bütünleşme analizi ve hata düzeltme-geliştirilmiş Granger nedensellik testleri kullanılarak ekonometrik açıdan analiz edilmektedir. Çalışmada Granger nedensellik testlerine göre iki değişken arasında karşılıklı nedensellik ilişkisi olduğu görülmüştür.
Anahtar Kelimeler: Enflasyon, Ekonomik büyüme, Granger Nedensellik Analizi

GLOBAL FINANCIAL DISCIPLINE IN THE RISE OF INTERNATIONAL TAX POLICIES

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Abstract

International policies have been reshaped as a result of a series of developments. Developments in the global arena have led to changes in the tax policies of nations. Initially, the tax policies shaped by the countries' own economic policies have begun to reshape together with global developments. The main factors affecting this situation are in the form of progress in the field of technology, developments in the international arena, and production factors becoming mobile. These developments have led to the change of policies between countries and the convergence of international policies. Countries have regulated tax legislation. New concepts such as harmonization and convergence in tax policies have been derived. Failure to revise tax laws in all countries at the end of a certain period of time, or even in certain countries, has led to a number of problems, such as double taxation, transfer pricing and tax havens. This situation will have an increasing effect on cooperation between countries and may also create tax conflicts between countries. Moreover, an increase in neo-liberal politics after 1970 led to the acceleration of this process. In recent years, these issues, which form the basis for the competitive disadvantage of foreign trade over time, have started to be considered as a serious problem in the financial field. This area has been investigated to produce solution policies. Initially, cross-country double taxation treaties were developed and diversified over time, with many countries coming together for an automatic information exchange agreement in recent years, and a new solution to global tax problems was introduced, beginning with the introduction of automatic information exchange in 2017. On the other hand, the recently introduced concept of fiscal discipline, which has been much discussed on the financial field, has not found sufficient application area. Economies that have become dependent on each other with globalization, have not used the fiscal discipline very widely in order not to restrict their intervention areas against a possible global crisis. It has been assessed that there may not be a case of fiscal discipline that could find a global field of application rather than criticism of fiscal discipline in the study. Automatic exchange of information is maybe an example of the global financial discipline.
Key words: Globalization, International Politics, Global Tax Issues, Automatic Information Exchange Agreement

ULUSLARARASI VERGİ POLİTİKALARI IŞIĞINDA KÜRESEL MALİ

Özet

Uluslararası politikalar bir dizi gelişmeler sonucunda yeniden şekillenmiştir. Küresel alanda yaşanan gelişmeler ulusları vergi politikalarına bir dizi iz düşümler meydana getirmiştir. Başlarda ülkelerin kendi ekonomi politikaları ışığında şekillenen vergi politikaları küresel gelişmelerle beraber küresel etkiler üzerine şekillenmeye başlamıştır. Bu duruma etki eden başat faktörler ise özellikle teknoloji alanındaki ilerlemeler, uluslararası arenada yaşanan gelişmeler, üretim faktörlerinin hareketli hale gelmesi şeklinde karşımıza çıkmaktadır. Yaşanan gelişmeler ülkeler arası politikaların değişmesine ve bu politikaların birbirlerine yakınlaşmasına yol açmıştır. Ülkeler vergisel mevzuatlarını düzenleme gerekliliği yaşamış

ve vergi politikalarında uyumlaştırma ve yakınlaştırma gibi yeni kavramlar türetilmiştir. Bu hususların gelişimi belirli bir süre sonunda, hatta belirli ülkelerde gelişme alanı bulurken vergi yasalarının tüm ülkelerde revize edilmemesi çifte vergileme, transfer fiyatlandırması ve vergi cennetleri gibi bir dizi sorunlara yol açmıştır. Bu durum ülkeler arası işbirliğini artırıcı bir etki yapacağı gibi ülkeler arası vergisel çatışmaları da doğurabilmektedir. Ayrıca 1970 sonrası neo-liberal politikalarda artış yaşanması bu sürecin hızlanmasına yol açmıştır. Zamanla dış ticarette rekabetin dezavantajlı konuma gelmesine zemin oluşturan bu hususlar son dönemlerde mali alanda ciddi bir sorun olarak değerlendirilmeye başlanmış ve çözüm politikaları üretmek için araştırmalar yapılmıştır. Başlarda ülkeler arası yapılan çifte vergilemeyi önleme anlaşmaları zamanla gelişmiş ve çeşitlenmiş olup son dönemde otomatik bilgi değişimi anlaşması için birçok ülke bir araya gelmiş ve 2017 yılında başlamak üzere otomatik bilgi değişimi ile küresel vergi sorunlarına yeni bir çözüm perdesi aralanmıştır. Diğer taraftan son zamanlarda mali alanda üzerinde çokça durulan mali disiplin kavramı yeterli uygulama alanı bulamamıştır. Küreselleşme ile birbirlerine bağımlı hale gelen ekonomiler yaşanabilecek bir küresel krize karşı müdahale alanlarının kısıtlanmaması için mali disiplin kavramını çok yaygın olarak kullanmamışlardır. Çalışmada mali disipline yönelik geliştirilen olumlu ve olumsuz yaklaşımlardan ziyade küresel alanda uygulama alanı bulabilecek bir mali disiplin olgusunun var olup olamayacağı hususu üzerinde durulmuştur. Son dönemde yaşanan küresel vergi politikaları değişimi ışığında otomatik bilgi değişimi anlaşmasının küresel mali disipline bir örnek teşkil etmesi hususu değerlendirilmiştir.

Anahtar Kelimeler: Küreselleşme, Uluslararası Politikalar, Küresel Vergi Sorunları, Otomatik Bilgi Değişimi Anlaşması

THE EFFECTS OF MACROECONOMIC VARIABLES ON THE XBANK INDEX

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Abstract

Finance markets have an important position in today's economy. When we look at international financial markets in the world, stock market is very important, which provides very high returns to individual and institutional investors in the short term. Innovations that have taken place in the field of information have increased the commercial and financial life functions of the banks by creating positive effects on the banking sector. This increases the profits of the banks and makes the transactions of the banks in the stock market even more important. Because the situation within the banking sector affects not only the government, bank owners and partners but also investors who are considering buying or buying bank stocks traded in the stock exchange.

In the literature, stock prices are used as well as multiple stocks or investment funds are weighed into a basket and the index values resulting from price changes of this basket are also used. BIST Banking Index values (XBANK) were chosen for the stock market index values to be used in the study. Johansen cointegration test, vector error correction model, Granger causality test and Var Granger causality test were applied to determine the causality relationship between the index and macroeconomic factors.

In this study, monthly XBANK index returns between January 2006 and June 2017 periods and the macroeconomic dynamics that are considered to affect this index are discussed. This return also includes negative changes. When examining the external and domestic empirical studies about the macroeconomic factors affecting the stock market in general, it can be seen that export, import, Consumer Price Index, Industrial Production Index, Crude Oil Price, Money Supply, Interest Rate, Exchange Rate (Monthly Average Dollar- TL) are used as macroeconomic variables.

In this study, first of all the logarithm of all the variables in the data set is taken and converted to a ratio value. Following this transformation, a dependent and eight independent variables were examined and their stationarity was examined by unit root test. As a result of this analysis, all variables except the industrial production index were stationary in the first difference. LM Test was performed for the test of autocorrelation effect. The autocorrelation was not observed because the probability values at the end of the test were greater than 0.05 at the second delay and before. Since the variables at the same level are all stationary, Johansen cointegration analysis is performed to examine the cointegration between variables. When the T-statistic values of all the variables were examined, it was found that all the variables except for the exchange rate were meaningful in explaining the changes in XBANK in the established model while the alpha level of significance was 0.10.

Granger causality tests and Var Granger causality tests were performed among the lagged variables to support the results. At the 10% level of significance as a result of the Var Granger causality test, the interest rate and import variables were regarded as a Granger cause of the changes in the XBANK index value. But the result of the Granger Causality test is that no variables are considered a Granger cause of changes in the XBANK index value.

Key Words: Macroeconomic Analysis, Stationarity, Johansen Cointegration Analysis, Granger Causality Test, VAR Granger Causality Test, BIST Banking Index

MAKRO EKONOMİK DEĞİŞKENLERİN XBANK ENDEKSİ ÜZERİNDEKİ ETKİLERİ

Özet

Finans piyasaları günümüz ekonomilerinde önemli bir yer edinmektedir. Dünyada uluslararası finansal piyasalara bakıldığında bireysel ve kurumsal yatırımcılara kısa vadede oldukça yüksek getiri sağlama kabiliyeti olan hisse senedi piyasalarının oldukça önem teşkil ettiği görülmektedir. Özellikle bilişim alanında meydana gelen yenilikler bankacılık sektörü üzerinde olumlu etkiler yaratarak bankaların ticari ve finansal hayattaki işlevlerini arttırmıştır. Bu sayede bankalar karlarını arttırmakta ve bu durum bankaların borsadaki işlemlerini daha da önemli hale getirmektedir. Çünkü bankacılık sektörünün içindeki durum sadece hükümet, banka sahip ve ortaklarını değil borsada işlem gören banka hisse senetlerini alan veya almayı düşünen yatırımcıları da etkilemektedir.

Literatürde hisse senedi fiyatları kullanıldığı gibi birden fazla hisse senedi veya yatırım fonunun ağırlıklandırılarak bir sepet haline getirildiği ve bu sepetin fiyat değişimleriyle ortaya çıkan endeks değerleri de kullanılmaktadır. Çalışmada kullanılacak olan borsa endeks değerleri için Borsa İstanbul Bankacılık Endeks değerleri (XBANK) seçilmiştir. Endeks ile faktörler arasındaki karşılıklı nedensellik ilişkisinin tespitine yönelik Johansen eş bütünleşme testi, vektör hata düzeltme modeli, Granger nedensellik testi ve Var Granger nedensellik testi uygulanmıştır.

Bu çalışmada Ocak 2006 ile Haziran 2017 dönemleri arasındaki aylık verilerle XBANK endeksi getirileri ve bu endeksi etkilediği düşünülen makro ekonomik dinamikler ele alınmıştır. Bahsedilen getiri negatif değişimleri de kapsamaktadır. Genel olarak borsayı etkileyen makro ekonomik faktörler hakkında yapılan yurt dışı ve yurt içi ampirik çalışmalar incelendiğinde İhracat, İthalat, TÜFE, Sanayi Üretim Endeksi, Ham Petrol Fiyatı, Para Arzı, Faiz Oranı, Döviz Kuru(Aylık Ortalama Dolar-TL) kullanılan makro ekonomik değişkenler olarak belirlenmiştir.

Çalışmada ilk olarak veri setinde yer alan tüm değişkenlerin logaritması alınarak orana dönüştürülmüştür. Bu dönüşümün ardından ele alınan bir bağımlı, sekiz adet bağımsız değişken birim kök sınamasına tabi tutularak durağanlıkları incelenmiştir. Bu analiz sonucunda sanayi üretim endeksi haricindeki tüm değişkenler birinci farklarında durağan çıkmıştır. Otokorelasyon etkisinin sınanması için LM Testi yapılmıştır. Test sonucunda probability değerleri ikinci gecikme ve öncesinde 0,05'ten büyük olduğu için otokorelasyon gözlemlenmemiştir. Aynı düzey değerlerinde değişkenlerin tamamı durağan olduğu için değişkenler arasındaki koentegrasyonun incelenmesi için Johansen eş bütünleşme analizi yapılmıştır. Test sonucuna göre veri serileri arasında eş bütünleşme tespit edilmiştir. Tüm değişkenlerin T-istatistik değerlerine bakıldığında, Alfa anlamlılık düzeyi 0.10 iken döviz kuru haricindeki tüm değişkenlerin kurulan modelde XBANK'taki değişimleri açıklamada anlamlı oldukları bulunmuştur.

Bulguların desteklenmesi için gecikmeli değişkenler arasında Granger nedensellik ve Var Granger nedensellik testleri yapılmıştır. Var Granger nedensellik testi sonucunda %10 anlamlılık düzeyinde, faiz oranı ve ithalat değişkenleri XBANK endeks değerindeki değişimlerin bir Granger nedeni olarak görülmüşken Granger Nedensellik testi sonucu hiçbir değişken XBANK endeks değerindeki değişimlerin bir Granger nedeni olarak görülmemiştir.

Anahtar Kelimeler: Makroekonomik Analiz, Durağanlık, Johansen Eş Bütünleşme Analizi, Granger Nedensellik Testi, VAR Granger Nedensellik Testi, BIST Bankacılık Endeksi

EPISTEMOLOGY AND EVOLUTION IN HAYEK'S ANALYSES: A CRITIQUE

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Abstract

This article will present a criticism on August von Hayek's two important points on market theory (epistemological uncertainty and evolution). According to Hayek, individuals have a very limited information in relation to the vast wealth of information in society and the only thing that can withstand this problem of limited information is a "market" system that has emerged through evolution and not through an institution that has been designed.

The first argument that will be put forward in the article is that; Hayek's definition on the origin of uncertainty and the impossibility of determinism on social sciences lacks or remains one dimensional because his conceptualization of uncertainty remains on an epistemological level. Hayek argued that, no one is given complete information and the fundamental economic problem is of one which the people do not know how to make use of the fragments which are scattered between them. In Hayek's vision, those fragments of information which are scattered between individuals are tacit, subjective and subject to change and this is the cause of uncertainty. However, the precedent cause of uncertainty and indeterminism of social and therefore economic systems are because of them being open systems. Social reality has been stratified in a way that it can not be reduced to human experience and to the event level of reality. It is open and differentiated in a way that event regularities can not be obtained from it. If we consider this openness as the basis of the system of social reality, then we can conclude that the source of uncertainty and/or the problem indeterminism is not based on the lack of information or the lack of capacity of people but it actually emerges as the nature of social reality itself. With the acceptance of this fact, the market and the price mechanisms credibility to create stability and deal with uncertainty would be removed as they remain within that epistemological constraint.

The other argument that will be put forward is; Hayek's inability to portray the real world because of his Panglossian approach to evolution. Hayek, embracing an evolutionary approach, has made a dynamic and accommodating economical critic. However, his evolutionary approach has very few foundations in modern evolutionary theory and is more of Pangloss's or Spencer's adaptationist approach saying evolutionary process leads to optimum results. It is in itself very problematic to choose which approaches in evolution would be more appropriate to apply to social theory or economics as the results can have serious consequences. Herbert Spencer's view on natural selection as "the survival of the fittest" has given a strong foundation for the view which regards the world we live in as the best of the possible worlds and therefore non-intervention as the best of the systems. It is quite objectionable to incorporate the adaptationist approach in social and economic theory. A vision like that omits the crises, instabilities, non-equilibrium and non-optimal situations of the real world. Instead, a "punctuaded equilibrium" approach like we find in Schumpeter's analysis should be adopted. Process of dynamic coordination is an evolutionary process with new leaps continuously happening as it is in its nature. This is why these dynamic processes require Schumpeter's development theory. In this theory of development, the norms of the system change and the result of the process is not definite. Thereby this development will cause instability, indeterminism and disequilibrium and would present a framework which is dynamic and non-linear between the individual and the market.

As a result of this article, if a discontinuous evolutionary and an ontologically indeterminist approach is adopted, the market is inherently instable and is in disequilibrium unlike being in a stable process as stated in Hayek's analysis.

Keywords: Hayek, Market, Instability, Indeterminism, Evolution

HAYEK'İN ANALİZİNDE EPİSTEMOLOJİ VE EVRİM: BİR ELEŞTİRİ

Özet

Bu yazıda, Friedrich August von Hayek'in piyasa teorisindeki iki önemli uğrağına (epistemolojik belirsizlik ve evrim) dair eleştiriler sunulacaktır. Hayek'e göre, toplumdaki tüm bilginin genişliği karşısında, bireyler oldukça kısıtlı bir bilgiye sahiptirler ve bireylerin sahip olduğu kısıtlı bilginin yarattığı sorunlarla mücadele edebilecek tek şey, tasarlanmış bir kurum değil, bir evrim süreci sonunda ortaya çıkmış olan "piyasa" sistemidir.

Yazıda savunulacak ilk argüman, Hayek'in belirsizlik kavramsallaştırmasının sadece epistemolojik düzeyde kalması nedeniyle, belirsizliğin ve de sosyal bilimlerde determinizm olanaksızlığının kaynağını eksik başka bir deyişle tek boyutlu tanımlamış olduğudur. Hayek, toplumun karşılaştığı en temel iktisadi problemin, kimseye tam veya eksiksiz olarak verilmemiş olan, yani bireyler arasında dağılmış olan bilgiden nasıl faydalanılacağı sorunu olduğunu iddia etmiştir. Hayek'in vizyonunda, belirsizlik, bireyler tarafından kullanılan bilginin, sübjektif, bireyler arasında dağılmış, örtük (*tacit*) ve sürekli değişmeye maruz kalan bir bilgi olmasından kaynaklanmaktadır. Fakat sosyal ve böylece iktisadi sistemlerdeki belirsizlik ve belirlenemezlik, bu sistemlerin "açık" sistemler olmasından kaynaklanır. Sosyal gerçeklik, gerçekliğin olaylar düzeyine ve sadece insan deneyimine indirgenemediği biçimde tabakalaşmış ve olay düzenliliklerinin elde edilemediği biçimde açık ve farklılaşmıştır. Sosyal gerçekliğin açık bir sistem olduğu gerçeği temel alındığında, belirsizlik ya/ya da belirlenemezlik sorunsalının kaynağının, insanların sahip olduğu bilgideki eksiklik veya bilişsel kapasitelerindeki kısıtlılık değil de, sosyal gerçekliğin varoluş biçimi olduğu görülecektir. Bu kabul ile birlikte, bu epistemolojik kısıttan kaynaklanan belirsizlikle baş etmek için yetkin olan piyasa ve fiyat mekanizmasının ve sağladığı istikrarın meşruiyeti de ortadan kalkacaktır.

Savunulacak bir diğer argüman ise Hayek'in analizinde yer alan evrim fikrinin Panglossçu bir yaklaşıma sahip olması sebebiyle gerçek dünyayı tasvirde yetersiz kaldığıdır. Hayek, evrimci bir yaklaşım benimsemekle dinamizme ve değişmeye yer veren bir iktisadi analiz yapmıştır. Fakat Hayek'in evrimci yaklaşımı, modern evrim teorisinde çok az dayanağı olan, Spencercı veya Panglossçu bir yaklaşım olan ve evrim sürecinin en optimal sonuçları ürettiği uyarlanmacı yaklaşımdır. Sosyal teori veya iktisatta hangi evrim anlayışının kullanılacağı meselesi, doğuracağı sonuçların ciddiyeti bakımından oldukça problemli bir meseledir. Herbert Spencer'ın "en iyi olanın hayatta kalması" (*survial of the fittest*) şeklindeki doğal seçim fikri, içinde bulunulan dünyanın en iyi dünya olduğunu ve böylece müdahalesiz bir düzenin en iyi düzen olduğu yönündeki görüşe sağlam bir temel vermiştir. Fakat bu uyarlanmacı yaklaşımın sosyal teoride kullanılması oldukça sakıncalıdır. Bu tip bir vizyon, gerçek dünyanın optimal olmayan durumlarını, krizlerini, istikrarsızlıklarını, dengesizliklerini dışlamaktadır. Bu uyarlanmacı yaklaşımın yerine, Schumpeter'in analizinde rastlanılan, "kesintili denge" olarak adlandırılan evrimci yaklaşım benimsenmelidir. Dinamik koordinasyon süreci, doğası gereği sürekli yeni sıçramaların gerçekleştiği evrimsel bir süreçtir. Bu sebeple dinamik süreçler, Schumpeter'in gelişme kavrayışını gerektirmektedir. Bu gelişme kavramında sistemin normları değişmektedir ve sürecin sonucu belli değildir. Dolayısıyla bu gelişme, istikrarsızlık, belirsizlik ve dengesizliklere yol açacaktır ve birey ve piyasa arasındaki dinamik ve doğrusal olmayan etkileşimleri de dikkate alan bir çerçeve sunar.

Bu yazıdan çıkan sonuç, ontolojik bir indeterminizm yaklaşımı ve sıçramalı evrim anlayışı benimsendiğinde, piyasanın, Hayek'in analizinde olduğu gibi istikrarlı bir süreç olmaktan ziyade, içsel olarak istikrarsız belirsizlikler ve dengesizlikler içeren bir süreç olduğudur.

Anahtar Kelimeler: Hayek, Piyasa, Belirsizlik, İndeterminizm, Evrim.

MACROECONOMIC LINKAGES TO THE AGRICULTURAL ECONOMY

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Abstract

We review the agricultural economics literature that involves macroeconomic linkages, including energy impacts and financial factors, and their role in the determination of agricultural commodity prices. The discussion begins in the early 1970s as the world began to move from a fixed exchange rate system to a flexible one. That had tremendous ramifications for U.S. and world agriculture. Another important change about this same time was the inclusion of agricultural and other commodities into investment portfolios; establishing an investment or portfolio demand for agricultural commodities. This portfolio demand lead to investigations into overshooting of agricultural prices due to their flexibility relative to manufactured or industrial prices. The literature looked at agricultural price overshooting effects on the agricultural sector in various countries.

In the last decade, we observed several macroeconomic occurrences of major importance to the agricultural sector simultaneously. The huge price hikes in the energy sector and the increased biofuel production; extreme variability in farm prices; farm income at record levels; and the continuing global financial and economic crisis. Within this context, this chapter covers the agricultural economics and related literature on macroeconomic issues with a focus on international trade and finance and how such factors as monetary policy, exchange rates, and energy prices affect domestic and international prices for agricultural products. The purpose of this chapter is to reexamine the impact of macroeconomic variables on farm prices. We synthesize the literature on the direct impacts of monetary policies on agricultural prices and provide insights into the future for this literature.

Key Words: Monetary policy, exchange rate, energy, commodity prices, overshooting

SMALL FARMING HOUSEHOLDS' FOOD SECURITY STATUS AND ROLE OF MARKET ACCESS FOR SUSTAINABLE FOOD SECURITY IN RURAL PAKISTAN

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Abstract

Food security is a complex problem that mainly consists of three core areas i.e. food availability, accessibility and utilization. Higher food demands and reduced crop productivity could lead to higher food prices, which may negatively affect the food access and availability for low income and small farming households. One of the major factors of household food security in various region of the world could be location isolation that relates to poor road quality, long distance to markets and poor and non-functional markets. The objectives of this study are to find out the food security status, its indicators and determinants of food security especially market accessibility factors. For this purpose primary data was collected from 576 small farming households by employing a systematic sampling technique. Food security status calculated using dietary intake method. The results show that about 22 percent of the respondent households are food insecure and the problem of food insecurity is 6 percent severe. Binary logistic modeling was used to identify the determinants of small farming household food security. The empirical results elucidate that family size, monthly income, food prices, health expenses and debt are the main determinants of household food security. Beside these, market accessibility related factors like distance to tarred road and transportation cost to output markets significantly affect the small farming household food security. Government should take steps for better infrastructure for irrigation water by constructing new dams and focus on new technologies to improve per acre production. For better market systems, we should focus on improved road and logistics infrastructure so that we should have easy access to markets with low transportation cost.

Key words: Food Security; Logistic Regression; Development; Market Accessibility; Small Farming Household

AGRICULTURAL PRODUCTS TRADE – THE WAY TO FOSTER ECONOMIC COOPERATION BETWEEN EUROPE AND ASIA

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Abstract:

The integration processes in the contemporary world are becoming more and more active. The said processes are the driving force of the modern economic development. The Euro – Asian cooperation has become the necessity that reflects the tendency of the strengthening cooperation between countries and regions as well as aspiring both Europe and Asia to the dialogue between each other.

Good relations with both European and Asian countries play an important role in the politics and economics of Ukraine. The economic situation of Ukraine cannot be described as a stable one. Together with the improvement of some indicators characterizing its economic development, some of them show the decrease in their numerical expression. Taking into account the said fact, Ukraine is suggested to pay attention to the development of its relations with Azerbaijan as a country that has a strong economic potential and is interested in the diversification of its economic relations.

The items that are to be the ways of fostering cooperation in terms of foreign trade between Ukraine and Azerbaijan in the direction export from Ukraine – import to Azerbaijan are the ones connected with agriculture, that is foodstuffs, products of vegetable and animal origin, fats and oils of animal or vegetable origin. The way to cooperation in the direction export from Azerbaijan – import to Ukraine lies in the industrial sector of economy, that is mineral products, miscellaneous articles of base metal, plastic, rubber and articles and products of chemical industry.

Mutually beneficial cooperation between Ukraine and Azerbaijan will significantly strengthen the political and economic positions of both countries on the world arena.

Key words: Foreign trade, agricultural products, economic relations, Euro – Asian cooperation, FDI.

DETERMINANTS OF ACCESS TO RURAL FINANCIAL SERVICES IN ETHIOPIA: EVIDENCES FROM DOBA AND KARSA DISTRICTS OF OROMIA REGION

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Abstract

Although contributions they have in socio-economic betterment of rural households are significant, rural financial services are at lower coverage in Ethiopia. This study aimed to analyze determinants of access to rural financial services the country. The data used for the study were collected from randomly selected 414 rural households. Descriptive statistics and multinomial logistic regression model were applied in this study. The results of the study showed that the probability of accessing cooperative based microfinance services (RuSACCOs, VSLAs & SILCS) was positively affected by farm land size, education level, and adult equivalent; and negatively affected by distance to market, religion, sex, & engagement of the households in to off-farm activities. Moreover, the probability of accessing the non-cooperative microfinance services was positively affected by farm land size, livestock holding, education level and adult equivalent; and negatively affected by religion, sex, market distance, distance to rural financial service providers and participation of the households to off-farm activities. Unlike that of cooperative based financial institutions, group based lending modality adopted by the MFI resulted in excluding poorest of the poor segment of the community. Hence, to undertake effective actions with the aim of improving access to rural financial services in the country in general and study area in particular, careful consideration of these factors (factors from households and rural financial service providers' side) is very important for policy makers and development practitioners/actors.
Key Words: Access; determinants; marginal effects; multinomial logit model; rural finance

1. Introduction

Access to financial services for poor people is important for the following reasons: (1) if we see it from the perspectives of savings, access to financial services provides a cushion that enables people to cope with unexpected events, as well as to gather large sums of money for investment in livelihood activities or payment of expenses such as school fees; (2) credit enables people to acquire income-generation and household assets; (3) insurance enables people to protect their assets against losses and to cover major medical expenses and loss of life; and (4) payment services enable people to send and receive remittances from family & friends, receive pensions and social benefits, & pay bills. In short, access to financial services enables people to better manage risk and take advantage of access to finance, available in the right amount, at the right time, from a variety of financial instruments (World Bank, 2007).

Despite its importance however, access to finance in Ethiopia is generally lower than the averages of Sub-Saharan Africa (SSA) countries. Furthermore, the gap in access to finance between urban and rural areas is also large. According to the World Bank (2012) Agribusiness Indicators, approximately 2.9 bank branches are available per 100,000 adults nationwide in Ethiopia compared to the SSA average

of 7.2 branches. Moreover, less than one bank branch is available for 100,000 adults in rural areas. The other figure related to financial services indicates that, while 14% of households nationwide have a bank account, only 1% of rural households in Ethiopia own bank account. Since access to a bank account is a prerequisite for obtaining credit for most banks, only 1% of rural households have received credit for agricultural activities. Overall, only 0.2% of the population borrows from banks, compared to the SSA average of slightly less than half of the population. In addition, while borrowers from commercial banks have risen dramatically in SSA since 2010, it has slightly remained stagnant in Ethiopia.

The major financial institutions operating in Ethiopia are banks, insurance companies and micro-finance institutions. Moreover, the roles of Capital Goods Finance Companies, Saving and Credit Cooperatives (SACCOs) or Rural Saving and Credit Cooperatives (RuSACCOs) and Voluntary Saving and Lending Associations (VSLA), and Saving and Internal Lending of Communities (SILC) in the country are significant. For the sake of convenience, in this study, RuSACCOs, VSLA and SILC are considered as cooperative based financial institutions against financial services provided by Microfinance Institutions (MFIs). Regardless of existence of these financial service providers in the country, only 6% (5% from MFIs & 1% from rural cooperative based financial institutions) and 21% (20% from banks & 1% from SACCOs) of urban population accessed the services respectively. These indicate that the overall access to financial services in Ethiopia is 27% (ATA, 2014). In order to achieve economic growth including growth in rural areas, access to a range of financial services is necessary. In addition to many other factors, growth in agriculture as well as other rural economic activities can be substantially enhanced if there is reliable and sufficient financing and sustainable financial intermediation.

In many countries it is only wealthy people, larger farms and larger rural enterprises who have access to financial services. On the other hand, the poor rural populations do not have access to the financial services. Despite this fact however, the microfinance "revolution" has demonstrated conclusively that financial intermediaries that serve the poor, as well as better-off populations and enterprises can be successful. Accessing the financial services to the poor provides them with some of the resources they need to pursue economic opportunities as well as manage their household finances (Tarozzi et.al., 2014). Therefore, this study was designed to analyze determining factors of rural households to access these available rural financial services.

2. Analytical Review

Financial services for the poor or microfinance can be a powerful tool to fight poverty. Access to a well-functioning financial system can empower individuals both economically and socially, allowing them to integrate more successfully into the economy of their countries, actively contribute to their development, and protect themselves against economic shocks. While microfinance is not a magic wand, and many other areas of development are also necessary to reduce poverty, access to financial services can help poor people to take control of their financial lives.

With microfinance services on their doorsteps, poor people are enabled to generate additional income and employment to support their own initiatives. Especially, women have to struggle against repressive social and economic conditions. Access to microfinance helps them gain self-confidence and this allows them to participate more equally in the decisions made in their families and villages. This in turn helps build the foundation for social and political involvement and democracy (Wiedmaier-Pfister, 2009).

It is widely recognized that, in many countries today, the rural poor are still mainly left out of markets for financial services and frequently rely on informal mechanisms at the village level such as moneylenders, supplier credit, and relatives & friends. A poor regulatory environment or policy framework, deficient financial infrastructure, including financial institutions, and lack of institutional know-how contribute to the dearth of rural financial services.

Even when an appropriate enabling environment exists, it is difficult for financial institutions to achieve scale of economies and to cover their costs when they are providing financial services to poor clients who are spread out across large distances. In "Building Inclusive Financial Systems: Donor Guidelines on Good Practice in Microfinance" (2004), the Consultative Group to Assist the Poor (CGAP) identified the extension of financial services into sparsely populated areas that are not served by professional financial service organizations as a frontier issue in the development of more inclusive financial systems (World Bank, 2007).

3. Methodology

Description of Study Area: West and East Hararghe Zones are among the 20 zones (excluding the Oromia Special Zone of Amhara region) of Oromia National Regional State. Chiro (326 km away to the east of Addis Ababa) and Harar (526 km away to the east of Addis Ababa) are the capital towns of the West and East Hararge zones, respectively. This study was conducted in Doba and Karsa districts of West Hararghe and East Hararghe zones of Oromia Region, respectively.

Sample Size and Sampling Design: The two zones and districts were purposively selected due to existence and operations of representative rural financial service providers and accessibility. Six farmers' associations (FAs) were selected from the two districts (three from each); namely, Waddessa, Waltane, and Tarkanfata PAs from Doba district, and Yabbata-Salama, Yabbata-Lencha, and Kufan-Zik FAs from Karsa districts, where all rural financial service providers were operational.

The sample size for primary data source was determined using the formula:

$$n = \frac{\Sigma(Ni^2 Ai/vi)}{N^2 D^2 + \Sigma Aivi} \quad (1)$$

Where: $A_i = P_i(1-P_i)$ and $D=C/Z_{\alpha/2}$

Where C is some margin of error to tolerate in estimation; P is the proportion of households with particular features; N is population size; n is sample size; Z is the value of standard normal distribution for a given level of significance (α); and vi is the proportion of population of district i to the total population in the selected districts. In fixing this sample size, C= 0.014, α=0.05 and P=0.5 were used. This value of P is proportion in the target population estimated to have particular characteristics or population parameter (it is safe to assume highest heterogeneity and set to 0.5); this proportion was supposed to approximate the proportion of the targeted ones in the population, at least for setting the sample size. Cochran (2002) states that selecting the most important characteristic and fixing the sample size for a survey is one of the options when there are more than one characteristic to be measured in a survey.

Accordingly a total of 2,125 people were included in the sample population, which brought about 414 sample households. This size was distributed proportionally (based on population size) to each district and FA. As a result, 213 and 201 households were sampled from Doba and Karsa districts respectively. Proportion of female headed households was also considered in sampling. The sample households include both user HHs (having access to microfinance, including recent dropouts, and non-user HHs (without access to microfinance, including those who are in the waiting list), as indicated in Table 1. The stratified and systematic random sampling technique was applied to select the sample households from the roaster of households. Fifty four percent of the sample households had access to financial services whereas the remaining 46% did not have access to the services. Of those who had access to the financial services, 58% were those who accessed the service from cooperative based financial institutions, and 42% were those who got the access from the MFI.

Table 1. Access statuses of households in the two study districts

Districts	Users of Coop based FIs services	Users of MFI services	Users of RFSP services	Non-users of RFSP services	Total
Doba	98	20	118	85	213
Karsa	30	74	104	97	201
Total	128	94	222	192	414

Methods of Data Collection*:* The data collected include respondents' socio-economic characteristics, features of rural financial service providers and other related issues like policy issues, regulatory frameworks& infrastructures. The primary data were obtained directly through the structured questionnaire interview, which was conducted at household level. Secondary data were obtained from government offices and other relevant organizations.

Methods of Data Analysis: Descriptive statistics and econometric analysis were used to analyze the data. Multinomial logit model was applied to analyze determinants of access of rural households to rural financial services.

Model Specification: In the application of multinomial logit model, the probabilities (the probabilities of accessing) are therefore given by (Greene 2003):

$$Prob(Y_i = j) = \frac{e^{\beta_k x_i}}{1+\sum_{k=0}^{4} e^{\beta_k x_i}} \quad (2)$$

where Yi gives probabilities for access to rural financial services for the ith rural households with Xi characteristics; j=0, 1,...,3; and e = 2.71828.

The model in equation (2) is a **multinomial logit model.** The estimated equations provide a set of probabilities for the *J* +1 access statuses for a decision maker (rural households) with characteristics **x***i*.Before proceeding, we must remove indeterminacy in the model. If we define $\boldsymbol{\beta}^*_j = \boldsymbol{\beta}\, j + \mathbf{q}$ for any vector **q**, then re-computing the probabilities defined below using $\boldsymbol{\beta}^*_j$ instead of $\boldsymbol{\beta}j$ produces the identical set of probabilities because all the terms involving **q** drop out. A convenient normalization that solves the problem is $\boldsymbol{\beta}_0 = \mathbf{0}$. (This arises because the probabilities sum to one, so only *J* parameter vectors are needed to determine the *J* + 1 probabilities).

$$Prob(Y_i = j/\boldsymbol{X}i) = \frac{e^{\beta_k x_i}}{\sum_{k=1}^{4} e^{\beta_k x_i}} \quad (3)$$

For j = 0,..., 3; and $\beta_0 = 0$.

Unlike from a behavioral viewpoint, from the point of view of estimation, it is useful that the odds ratio, *Pj/Pk*, does not depend on the other choices, which follows from the independence of disturbances in the original model. We noted earlier that the odds ratios in the multinomial logit or conditional logit models are independent of the other alternatives. This property is convenient as regards to estimation, but it is not a particular appealing restriction to place on consumer behavior. The property of the logit model whereby *Pj/Pk* is independent of the remaining probabilities is called the **independence from irrelevant alternatives (IIA).** The independence assumption follows from the initial assumption that the disturbances are independent and homoscedastic.

Dependent variable: the dependent variable is unordered access status, taking discrete values of 0 to 2, indicating the access statuses (0 for no access to any of the available rural financial service providers; 1 for access to cooperative micro financing (SILCs, VSLAs and RuSACCOs); 2 for access to non-cooperative micro financing (MFIs), as stated in Table 3.

Explanatory variables: based on review of literature variables pertinent to characteristics of farm households, financial service providers and other related issues were included in the model.

Household characteristics include: age, gender, education level, technical support/extension services, level of financial literacy, attitude towards risk, access to rural financial information and services, service utilization, religion, household labour, dependency ratio, farm land size, on-farm activities, draught animals, market distance, farm income, off-farm activities, off-farm income, savings, expenditures, assets, of the rural households as specified in Table 2.

Characteristics of rural financial service providers include: lending modality, ownership, non-financial services provisions, distance, loan size, loan terms, service provision modality, product mixes, repayment schedule, interest rate, physical & human capacities (of service providers), and supervision, as indicated in Table 2.

To estimate a multinomial logit model, suppose Y is the dependent variable indicating access status of the rural households. That is, $Y_i = 0$, if the ith rural household had no access to any of the rural financial service providers available in the area; $Y_i = 1$, if the ith rural household had access only to cooperative based financial institutions - SILCs, VSLAs and RuSACCOs; $Y_i = 2$, if the ith rural household had access only to non-cooperative microfinance organizations – MFIs.

Financial services access probabilities of farm households were estimated in such a way that the dependent variable was limited between discrete accesses of the respondents among options of no access to rural financial services, access to cooperative financial institutions and access to non-cooperative microfinance organizations. To study such nominal categories, either multinomial logit (MNL) or

multinomial probit (MNP) technique would be appropriate. However, MNL was preferred to MNP due to its computational convenience & ease of interpretation (Maddala, 1983).

Table 2. Type, definitions and measurement of some variables (categorical)

Variables	Types and definition	Measurements
RFS access status	Categorical, access to RFSP	0 if no access, 1 if access Cooperative based FIs and 2 if access MFIs
Sex	Dummy, sex of HH head	0 if female and 1 if male
Age	Continuous, age of HH head	Years completed
Religion	Dummy, religion of HH head	1 if Muslim and 0 Christian
Marital status	Dummy, marital status of HH head	1 if married and 0 otherwise
Education level	Dummy, education level of HH head	1 if literate and 0 otherwise
Farm land size	Continuous, farm land size	Hectares
Market distance	Continuous, market distance	Kilometers
RFSP distance	Continuous, RFSP distance	Kilometers
Livestock holding	Continuous, livestock holding	TLU
Adult equivalent	Continuous, active family members	AE
Off-farm activities	Dummy, off-farm activity engagement	1 if yes and 0 if no
Access to irrigation	Dummy, access to irrigation	1 if yes and 0 if no
Usage of seed	Continuous, seed amount utilized	Kg/ha
Usage of fertilizers	Continuous, fertilizer amount utilized	Kg/ha
Access to tele services	Dummy, access to telecom services	1 if yes and 0 if no

4. Results and Discussions

Descriptive Statistics Results: Survey result shows that selected socio-demographic and some other variables are significantly different for user and non-user households, as indicated in Table 3. Total farmland holding is significantly different among users and non-users at less than 1% probability levels. Similarly fertilizer usage, market distance and adult equivalent were also different among user and non-user groups at 5% significance levels, and the same is true with livestock holding measured in TLU. However, age could not proof of playing significance role in service access.

Table 3. Socio-demographic and some other features of sample households-continuous variables

Characteristic	Total (n=414)		User HHs		Non-user HHs		t-values
	Mean	St.dev	Mean	St.dev	Mean	St.dev	
Age of the respondent	36.02	10.25	36.47	10.19	35.49	10.32	-0.34
Adult Equivalent	4.15	1.31	4.29	1.28	4.00	1.33	2.28**
Livestock holding	2.5	1.91	2.7	2.04	2.29	1.75	1.98*
Market distance	7.48	4.58	7.34	4.55	7.64	4.63	-2.24**
RFSP distance	5.55	5.53	5.56	5.60	5.54	5.56	1.28
Fertilizer usage	58.35	40.62	61.9 6	42.54	54.18	37.96	2.37**
Total land holding	0.65	0.45	0.61	0.37	0.70	0.52	3.16***

Notes: ***, ** and * Significant at 1%, 5% and 10% probability levels, respectively

Apart from engagement of households in to off-farm activities, which is significant at 5% probability levels, and marital status & religion, where both are significant at 10% probability levels, all other socio-demographic discrete variables stated in Table 4 have no significant differences for user and non-user households. The study results also showed that lending modality adopted by MFIs, which is group based lending approach, excluded poorest of the poor and better income level households.

Table 4: Socio-demographic and some other features of sample households-discrete variables

		Total	**User**	**Non-user**		**Users Coop based FI**		
		HHs	HHs	HHs		**FIs**	**MFI**	
		(N=414)	**(N=222)**	(N=192)		**(N=128)**	**(N=94)**	
Parameter	**Category**	**%age**	**%age**	**%age**	x^2	**%age**	**%age**	x^2
Sex of the respondent	Male	93	91	95	1.599	57	43	0.485
	Female	7	9	6		65	35	
Education level	Literate	45	43	48	0.882	60	40	0.58
	Otherwise	55	57	53		55	45	
Access to tele services	Yes	45	55.5	44.5	0.117	61.8	38.2	1.304
	No	55	52.9	47.1		54.2	45.8	
Model farmer	Yes	44	63.9	36.1	14.022**	70.1	29.9	15.650**
	No	56	53.6	46.4		43.8	56.2	
Off-farm engagement	Yes	10	14	7	5.029**	60	40	0.078
	No	90	86	94		57	43	
Access to irrigation	Yes	2	2	2	0.035	50	50	0.098
	No	98	98	99		58	42	
Marital status	Married	93	93	93	0.045	59	42	3.889*
	Otherwise	7	7	7		33	67	
Religion	Christian	7	10	4	5.053	33	67	3.849*
	Muslim	93	90	96		33	67	
Ethnic group	Oromo	97	97	98	0.11	33	67	2.331
	Amhara	3	3	3		33	67	

Notes: ** and * means significant at 5% and 10% probability levels, respectively

Table 5 shows that on average, a household in the study area owns 0.66 hectares of land, with significant land holding difference among users and non-users of rural financial services. Regarding land use practices, irrigation was one of economic activities in the study areas besides rain-fed agriculture. Irrigation helps the households to produce two or more times a year, which complements household income. The survey result, however, showed that insignificant farm land was allocated for this purpose, with insignificant difference between the user and non-user households' land size for irrigation.

Table 5: Land and land use

Land size and use	**Unit**	**Mean**		**t-statistics**
		Users	**Non-users**	
Total land holding	Hectare	0.699	0.617	1.903*
Land holding (rain-fed)	Hectare	0.684	0.609	1.824*
Land holding-irrigation	Hectare	0.011	0.005	0.817

Notes: *Denotes significance level at 10%

The other variables which can affect crop production and productivity include fertilizer, improved seed and chemicals utilization. The survey results indicate that the sample HHs (on average) made use of about 92kg/ha, 46kg/ha and 0.76lit/ha of fertilizers, improved seeds and chemicals respectively. Agricultural input (like fertilizers, seed & chemicals) utilizations were found to vary between the rural financial services user and non-user households. The survey results showed that agricultural input utilization and access to rural financial services had direct (+ve) correlations, and affected agricultural production & productivity as stated in Table 6.

Table 6. Mean comparison of input utilization of user and non-user households

Agricultural inputs	Mean (kg/ha)			t-statistics	Sig.
	User	Non-user	Difference		
Fertilizers	61.959	54.2	7.8	1.950*	0.052*
Improved seeds	13.473	7.9	5.6	1.493	0.136
Chemicals	0.103	0.9	0.8	1.440	0.155

Notes: *Denotes significance level at 10% probability

Loan purposes of rural farm households are usually meant for on-farm and off-farm economic activities. The study results indicate that majority of the sample households utilized the loan they got from the rural financial services for on-farm activities, some of them for off-farm activities and other for both activities as indicated in Table 7. The study shows that more than three fourth of the user households used the loan for purchase of agricultural inputs, fattening and small ruminant production. About 18% and 5% of the user groups used the loan for off/non-farm activities, and for both off & on-farm activities respectively.

As livestock is in the model as stated in subsequent Tables (Table 8 and 9), it is necessary to check for existence of problem of Endogeniety. The share of small ruminant production is found to be insignificant. That means, the number of households that received loan and utilized it for small ruminant production side by side to other activities were only 11 out of the 170 households, as indicated Table 7. This substantiates that the contribution of production of small ruminant/shoats is insignificant for income generated from livestock as a result of direct investment of the loan. This makes that problem of Endogeniety is nil in this regard.

Table 7. Loan purposes of RFSP user groups

Loan purposes	Number of HHs	%age
On-farm activities (seed, fertilizers, chemicals, fattening, small ruminant production etc) only	170	77
Off-farm activities only	40	18
Both on-farm and off-farm activities	12	5
Total	222	100

Households had different years of experience with the rural financial service providers in the study areas. About 83% of user households in the study areas had experiences of accessing the rural financial services for more than five years, while 10% and 7% had experienced for 3-5 and 1-3 years respectively.

Determinants of Access to Rural Financial Services: Multinomial logit model was used to identify the determinants of rural household's access to rural financial services. Before proceeding to estimate the data using multinomial logit model, checking the existence of multicollinearity between explanatory variables tests were undertaken. Variance of inflation factor (VIF) and Contingency Coefficient (CC) were applied to test existence/level of multicollinearity between continuous and discrete explanatory variables.

Results of Diagnostic Tests: Examination of the VIF for continuous and CC for discrete variables in the model show that there are no serious problem of multicollinearity. Koutsoyiannis (1977) suggests retaining a variable that is very essential for the model even if it may cause multicollinearity. She states also that omission of such variable can cause model misspecification and overestimates the residual variance. To the contrary, retaining a variable that causes multicollinearity may result in changes in the sign of some variables in the model. As a result, in this study there was insignificant room for multicollinearity.

Results in Table 8 show that the alternative "no access to rural financial services" was used as bench mark alternative or base outcome so that the coefficient estimates are the logarithm of the odds of access to cooperative based microfinance or non-cooperative microfinance organizations/MFIs over this benchmark alternative. Some variables are with different sign of estimated coefficient, and also significance level (t-values), for access to cooperative based microfinance organizations and non-cooperative microfinance organization. A positive estimated coefficient of a variable indicates the

magnitude of increase in the likelihood of accessing a particular rural financial service provider, and vice-versa for negative coefficient.

The probability of accessing the cooperative based microfinance organizations was positively affected by farm land size, livestock holding, adult equivalent, and education level; and negatively affected by sex, religion, market distance, and engagement of the HH in to off-farm activities. This indicates that religion is one of the barriers for rural households in accessing rural financial services in general. This may call for rural financial services providers to adopt non-interest bearing loan, based on Islamic principles. This obviously affects income of the rural financial service providers in the short run, but the financial service providers, in doing so, encourage more clientele to access other financial services too; like money transfer, savings, insurances etc from these providers. These in turn increase volume of operations of these service providers, where they could ensure advantages from economies of scale.

The probability of accessing the MFI was positively affected by farm land size, adult equivalent and education level of the households; and negatively affected by sex, religion, engagement of farm households in to off-farm activities and HH distance from rural financial service providers. Engagement of households in to off/non-farm activities had negative effects on the probability of accessing both the cooperative based FIs and MFI.

This could happen as a result of involvement of the households in generating more income from off/non-farm economic activities like petty trade, daily labourer, handicrafts etc, which enable the households to develop capacity to cover demand for loan from outside (loan from rural financial service providers) to purchase agricultural inputs. This creates negative relationships between engagement of rural households in off/non-farm income generating activities and probability of accessing micro-finance service providers. This finding is in agreement with (Mengisu*et.al.*, 2013).

The study results indicated that farm land size, adult equivalent, and education level of the rural households affected the probability of accessing both types of rural financial service providers positively; whereas, sex, religion and engagement of rural households affected the probability of accessing them negatively. Distance of the households from market had negative implications on households to access the available rural financial service provider; whereas distances of offices of the rural financial services from the household had negative implications on probability of accessing only for non-cooperative microfinance organizations. Total livestock holding affected access probability of the rural households to the MFIs positively, and had nil/no effect on access probability of the rural households to cooperative based financial institutions.

Farm land size: As land is one of the major factors of agricultural productions (but it is impossible to increase land size under no redistribution), increase in size of farm land calls for more labour and capital. Thus increase in farm land size encourages rural households to go for rural financial services for more capital to invest on the additional farm land. This indicates that increase (ha) in farmland holding increases probability of rural households to access rural financial service providers.

Total livestock holding: MFIs follow group based lending modalities where by groups are formed following critical assessment of creditworthiness & repayment capacity of each of the group members. In this assessment process, the group members look at assets (like livestock) behind the member; if the member has those assets s/he will have more chance to be included in the group. Total livestock holding did have nil/no influence on access probability of the rural households to cooperative based financial institutions, as these institutions are community/cooperative based or self-help groups. That is why the study result indicates that access probability of rural households to MFIs was affected by total livestock holding positively; whereas had no influence for coop based financial institutions as indicated in Table 8.

RFSP office distance from rural households: Rural household distances from rural financial services affected the probability of accessing only non-cooperative microfinance organization negatively but not the cooperative based microfinance institutions. It is quite logical that as the rural financial service providers are far away from the rural communities, there will be lower probability of the communities to join the service providers.

Issue of distances of rural financial service providers from rural house hold would be an issue only for non-cooperative microfinance organizations, as the cooperative microfinance organizations are at least within FA if not at community levels. As per Government policy RuSACCOs are established at FA levels where as there might be VSLAs and SILCs at community levels. Generally, cooperative based

microfinance institutions are within the community and MFIs are at district town levels and the community may be challenged to access the MFIs due to distances.

Market distance: Market is one of important infrastructure within lives of rural households. As households are far away from market for their produce and purchase of industrial products, they incur more costs (time, labour, money) of transportation, and also they benefit less from access to information, which help them make informed decision in their day-to-day lives. Thus market distance negatively affected access of households to rural financial services.

Adult equivalent: Adult equivalent affected the probability of accessing both microfinance organizations (cooperative based financial institutions and MFIs). As the financial services accessed from rural financial service providers are meant for investment on agricultural and/or off/non-farm activities to improve total income, the households need to have labour to run these activities. As a result, households with more labour force have more probability to access rural financial services as compared to those households with less labour force.

Table 8. Multinomial logit parameter estimates

			CMFO			NCMFO
Variables	**Coefficient**	**St.Error**	**t-values**	**Coefficient**	**St.Error**	**t-values**
Age of HH head	0.0048	0.013	0.36	0.0114	0.016	0.74
Sex of HH head	-0.7992	0.472	-1.69*	-0.8794	0.533	-1.65*
Marital status	0.7941	0.590	1.34	0.3880	0.487	0.80
Education level	0.5435	0.272	1.99**	0.0075	0.004	2.03**
Farm land size	1.1929	0.386	3.13***	0.7575	0.368	2.06**
Market distance	-0.1336	0.042	-3.21***	-0.0660	0.040	-1.65*
RFSP of distance	0.0219	0.034	0.65	-0.0532	0.032	-1.67*
Religion	-1.1732	0.483	-2.43**	-1.0114	0.613	-1.65*
Total livestock holding	0.0209	0.072	0.29	0.1307	0.073	1.79*
Adult equivalent	0.2473	0.108	2.29**	0.2640	0.114	2.38**
Off-farm engagement	-0.8344	0.416	-2.01**	-0.9200	0.445	-2.07**
Irrigation access	0.7493	1.136	0.66	0.6041	1.121	0.54
Seed usage	0.0050	0.005	0.93	0.0066	0.005	1.27
Access to Tele service	0.2153	0.261	0.83	0.3461	0.281	1.23
Fertilizers usage	0.0053	0.004	1.49	0.1551	0.297	0.52
Constant	1.7946	1.701	1.05	0.3581	1.7672	0.20

Multinomial logistic regression
Number of observations = 414
LR $chi^2(30)$ = 75.49
Prob> chi^2 = 0.0000
Log likelihood = -399.39424
Pseudo R^2 = 0.0863

Notes: ***, ** and * denotes significance levels of the variables at 1, 5 and 10 percent respectively

Marginal effects and elasticity: As it is indicated in Table 9, engagement of households in to off/non-farm economic activities, adult equivalent, religion, education level, total livestock holding, sex, market distance, and farm land size owned affected the access probabilities of rural households for rural financial services. Engagement of households in to off/non-farm activities affected access probabilities of the households towards the rural financial services negatively, where as adult equivalent and farm land size affected the probabilities positively.

Engagement of households in to off/non-farm activities: This affected the probability of accessing both cooperative and non-cooperative financial institutions negatively. This could happen as a result of involvement of the households in generating more income from off/non-farm economic activities like petty trade, daily labourer, handicrafts etc, they developed capacity from their own to cover demand for loan from outside (loan from MFOs) to purchase agricultural inputs. This creates negative relationships between engagement of rural households in off/non-farm income generating activities and probability of accessing micro-finance service providers.

Farm land holding: Interactions between farm land size of a household and probability of accessing the available rural financial services are found to be direct. This means, *ceteris paribus*, a percentage increase in farm land size of a household increases the probabilities of the household to access cooperative based financial services by 0.5% and vice versa. A percentage increase in adult equivalent of a household increases probability of the household to access cooperative based financial institution and MFIs by 0.13% and 0.67% respectively.

Education level: This variable affected probability of households to access both segments of rural financial service providers positively. This could be as a result of as education raises awareness of the households towards new technology absorption/adoption and development which requires additional capital. This leads the households to search for credit. Then the households go for any of the available financial service providers to access the services. Households with low level of education are with limited tendency to take risks and adopt new technology and would lose benefits to be obtained from the intervention. Therefore, it would be important to educate peoples in rural areas to enable them enjoy economic benefits.

Table 9. Multinomial logit coefficients marginal effect and elasticity

Variable	Prob [No access to FRSP]; N=192		Prob [Access to Coop FIs]; N=128		Prob [Access to MFI]; N=94	
	Marginal effects	Elasticity	Marginal effects	Elasticity	Marginal effects	Elasticity
Engagement into off-farm	-0.1965	0.8708	-0.0999	-0.7113	-0.0966	-0.8737
	(-2.40)**		(-1.46)		(-1.55)	
Access to irrigation	-0.1544 (-0.69)	-0.3754	0.1040 (0.23)	0.3866	0.05050 (0.32)	0.2390
Education level	0.0533	0.0521	0.1133	0.1921	0.0601	0.1219
	(1.02)		(2.40)**		(1.74)*	
Distance from RFSP	-0.0080	-0.1163	0.0008	0.0054	0.0073	0.1790
	(-1.30)		(0.14)		(1.56)	
Religion	0.1786	0.3805	-0.2036	-0.7077	0.0250	0.0960
	(1.73)*		(-2.62)**		(1.88)*	
Fertilizer usage	-0.0014	-0.2089	0.0005	0.1018	0.0009	0.2288
	(-1.02)		(0.90)		(1.08)	
Age	0.0358	0.0358	0.0016	0.2090	-0.0022	-0.3763
	(0.16)		(0.70)		(-0.92)	
Sex	0.1354	0.2951	-0.1298	-0.4442	-0.0056	-0.0269
	(1.43)		(-1.63)*		(-1.67)*	
Distance	0.0192	0.3086	-0.0239	-0.6905	-0.0046	-0.1290
from market	(2.58)**		(-3.39)***		(-1.79)*	
Marital	-0.1572	-0.1572	0.1759	0.5813	-0.1140	-0.5181
status	(-0.68)		(1.69)		(-1.56)	

Adult equivalent	-0.0444	-0.4511	0.0093	0.1307	0.0350	0.6718
	(-2.18)**		(1.75)*		(2.10)*	
Farmland holding	0.3302	0.3301	0.1785	0.4515	0.0472	0.1662
	(3.49)***		(2.68)**		(2.85)**	
Seed usage	-0.0427	-0.0427	0.0005	0.0124	0.0007	0.0285
	(-1.09)		(0.68)		(1.26)	
Livestock holding	-0.1629	-0.1629	0.0183	0.1571	0.0072	0.0728
	(-1.74)*		(1.47)		(1.67)*	
Access to telephone services	-0.0001	-0.0002	0.0631	0.0971	-0.1565	-0.1565
	(0.00)		(1.38)		(-1.60)	

Notes: The dependent variable is Access Status: No access to any RFSP (0); Access to Cooperative based financial institutions (1); & Access to MFIs (2); Log likelihood = -399.394; Pseudo R^2 = 0.0863; Prob> chi^2 =0.0000; LR chi^2 (30) = 75.49; number of observations = 414. Values in brackets are t-statistics. ****, ** and * denote statistical significance at 1%, 5% and 10% levels respectively.

RFSPDST - Rural household distances from offices/centers rural financial service providers affected the probability of choosing only non-cooperative microfinance organization negatively but had no/nil effect on the cooperative microfinance organization. It is quite logical that as the rural financial service providers are far away from the rural communities, there will be lower probability of the communities to join the service providers. Issue of distances of rural financial service providers from rural house hold would be the case for only non-cooperative microfinance organizations, as the cooperative based microfinance organizations are within the communities or at least within farmers' association.

5. Conclusion and Recommendations

The descriptive statistics results showed that 54% of the sample households had access to financial services whereas the remaining 46% did not have access to the services. Of those who had access to the financial services, 58% had access to cooperative based financial institutions and 42% had access to the MFI. Moreover, these results showed that there were significant differences between rural households who had access and had no access to rural financial services with respects to total farm land holding, distance from market, distance from centers/offices of rural financial service providers, total number of livestock, sex of the respondent, education level, religion, adult equivalent, and experiences in off-farm activities.

The multinomial logit model results indicate that households who owned more livestock have more access to financial services than those who owned less. Therefore, support (such as extension and veterinary services) need to be expanded to the farm households to maintain or increase their stock of livestock, which in turn contributes for increasing financial services access probability of households.

The study results also showed that households' proximity to market significantly affected their access to the rural financial services. Proximity to market would lower transportation cost and enhance acquisition of information that would support informed decision-making. Therefore, enhancing farm households' access to product and service markets by improving transportation and communication services, and expanding market locations in close proximity to rural farm households need to be promoted.

Rural household distances from offices/centers of rural financial services affected the probability of the households to access these services. This indicates that it is advisable for rural financial service providers to become closer to the households as much as possible for the purpose of encouraging the households to join the services and expand their operations. Moreover, the study results showed that group based lending modality approach adopted by MFI excluded poorest of the poor segments of the society, for which the MFIs came in to being. Hence, to contribute for improvement of access of rural

households to rural financial services, rules and regulations set by these financial service providers, particularly, the MFIs needs attention from policy makers perspectives. The other important variable is number of active/productive family members. Adult equivalent was found to affect rural households' access to rural financial services positively. Households with more productive labour had better access to rural financial services than those with less productive household labour. This is in line with economic rationale where demand for capital would increase with land and labour. This further calls for working on income generating activities in rural areas (at micro and small enterprise or individual bases) both on off/non and on-farm activities parallel with facilitating availability of rural financial services to absorb the potential productive labour in the society, so as to enable them contribute to national GDP.

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PROPAGATION OF ECONOMIC SHOCKS FROM RUSSIA AND WESTERN EUROPEAN COUNTRIES TO CEE-BALTIC COUNTRIES: A COMPARATIVE ANALYSIS

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Abstract

What is the relative importance of Russia and Western European countries on Central and East European and Baltic (CEE-Baltic) countries? This paper tries to address this geo-politically important question by quantifying and comparing the spillover effects of a growth and trade shocks coming out of Russia and three major Western European countries (i.e. Germany, France and Italy) on ten CEE-Baltic countries. It uses a global vector autoregression (GVAR) method with quarterly data from 2003Q12015Q3. In constructing the foreign variables, a time varying trade weight is used instead of a fixed weight in order to take account of the financial crisis of 2007-08 and the recent economic sanctions on Russia. The results show that growth spillover effects are strong in the region. However, shocks to Russia have higher and persistent spillover effects on CEE-Baltic countries compared to shocks to Western European countries. Spillover effects of growth shocks also show that Russia is affected more by Western European countries than the other way round. Trade balance shocks on the other hand do not play an important role in this transmission process.
Key words: Economic growth, spillover effects, global vector autoregression, Central and East European countries

SYSTEMICALLY IMPORTANT BANKS IN BULGARIA – ARE THEY RISKIER THAN THE SMALLER ONES?

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Abstract

The paper analyses key coefficients for the systemically important banks and medium sized and small banks in Bulgaria. Tendencies and idiosyncratic features of the banks' behavior are highlighted. The correlation between key bank indicators and the bank's size is investigated and conclusions are drawn. On the basis of the analyzed data, the conclusion is made that the systemically important banks in Bulgaria have a significantly different behavior than their analogues in big financial systems or global systemically important banks. The paper reveals that contrary to their international peers, the Bulgarian banks are more oriented to traditional banking activities and do not benefit from the hidden subsidy of being systemically important. They are funded with more sustainable resources /deposits/, have higher levels of capital adequacy and do not create prerequisites for systemic risk. The analyzed data for the systemically important banks in Bulgaria do not indicate riskier behavior and their market behavior and business strategy do not differ from that of the medium sized and small banks. Large banks in Bulgaria accumulate sufficient levels of capital and the increase in the bank size (market expansion) is backed by sufficient level of capital. Systemically important banks in Bulgaria have better performance of their main profitability indicators as ROA, ROE, net interest margin and net non-interest margin. The key indicators for banking activity as deposits' growth and lending indicate that the market recognizes the fifth biggest banks in the country as TBTF banks.
Key words: systemically important banks, indicators, systemic risk, market behavior, business strategy.

1. Introduction

The global financial crisis led to a review of the Too Big to Fail /TBTF/ Doctrine and the role of the systemically important banks. The systemically important banks generate economies of scale from their activities, which they can transform to the prices of the products they offer. The systemically important banks tend to offer more diverse and innovative products, they have easier access to the capital market, offer their clients a variety of products and services at one place and can better diversify of their portfolio. The last, however, contradicts the fact that was evident during the global financial crisis in 2007-2009 that systemically important banks are more prone to participate in riskier investments and to apply complex strategies that could be hardly investigated by the internal bank audit and the supervisory authorities. Despite the above mentioned advantages the TBTF doctrine has a number of disadvantages. According to Goldstein and Veron (2010) the TBTF banks increase the systemic risk in the banking system and they have higher share of written down/written off loans. The TBTF doctrine distorts competition as the systemically important banks can get funding from the market at lower prices. These banks also tend to offer deposits at lower interest rates. Saving a systemically important bank by the governments dilutes the responsibilities of the management for the serious financial difficulties from which the bank suffers. The lack of objective criteria for taking a decision whether to save or not a TBTF bank creates prerequisites for lobbying and deeper links between the bankers and politicians. The TBTF doctrine worsens market discipline which may have serious effects in the long-run. Saving systemically important banks creates expectations in the sector that banks are going to be saved in cases when they suffer from serious financial difficulties and there is a risk to become insolvent.

By analyzing key banking indicators the paper investigates whether the systemically important banks in Bulgaria show a different market behavior, business strategy and funding models compared with the medium sized and small banks and thus creating prerequisites for systemic risk in the economy. Publicly available data from the Internet site of the Bulgarian National Bank (the Central Bank of Bulgaria) are used as the majority of the indicators are calculated by the author. The banks that are referred as systemically important are the banks that fall in top five banks in the country in terms of assets as the banks that are falling in this group are changing during the investigated period – March, 2006 – March, 2017. The rest of the banks operating on the market in Bulgaria, except the branches of foreign banks, are referred as medium sized and small banks.

2. The Bulgarian Banking System

The level of concentration in the Bulgarian banking sector is high as the five biggest banks in the country hold 57% of the assets in the banking system as of the end of 2016[1]. This high level of concentration creates prerequisites for increased contingency effect in the Bulgarian banking system in cases of bank's insolvency. The prevailing share of banks which are subsidiaries of foreign banks is also a prerequisite for contingency from the mother bank to the local subsidiary. However, during the global financial crisis the balance sheets of the banks, subsidiaries of the foreign banks, worsened less in comparison with the balance sheets of the mother banks. This is due to the fact that subsidiaries are operationally separated from the mother banks and practically, there is risk only for the branches of foreign banks. However, their share in the Bulgarian banking system is insignificant - 2,8% of the assets in the banking system as of the end of 2016.

The main risks in the Bulgarian banking system are credit risk and liquidity risk as the share of non-performing loans in the Bulgarian banking system is higher compared with the average levels in the European Union – 12,85% as of the end of 2016. The share of non-performing loans to non-financial corporations is 2,5 times higher compared with the household sector as the figures are 73% and 26%, respectively for both sectors. Since 2008 the ratio "Loans/Deposits" constantly drops as the banks become more active on the deposit market (the level of investment products offered to the banks' clients is very low). As of the end of 2016 the share of deposits in the banks' liabilities is 84,97%. The dynamics of loans in 2014 and 2015 is negative despite the positive growth in the banks' assets as the banks hold a considerable share of their attracted resources as reserves at the Central bank[2]. The level of concentration of the seven biggest banks in the country varies between 57% and 67% for the period 2006-2016. After placing KTB - the fourth biggest bank in the country - under special conservatorship the level of concentration fell from 65% as of the end of March, 2014 to 57% as of the end of June but as of the end of September the rest of the sixth biggest banks succeeded to restore partially that share in the banking market registering an increase by 5%.

3. Dynamics of Key Indicators for the Systemically Important and Medium Sized and Small Banks in Bulgaria

The bank's size is measured by the amount of its assets. The importance of the bank's size on systemic level is measured by the ratio Bank's Assets/GDP. The assets' growth is indicative for the strategy followed by the bank management as the excessive growth of the bank's assets increases the risk and decreases the values of ROA. Dynamics of the assets' growth by the banks from the first and from the second group in Bulgaria indicates no considerable difference in their behavior – Fig. No. 1 in the Appendix shows that the registered growth of assets by the banks in the first and in the second group is overlapping, except some periods – June, 2007 when due to a change in the methodology of the Banking Supervision Department of the BNB the number of the banks in the first group was

[1] According to the Banking Supervision Department the banks in Bulgaria are divided into three groups – the first group includes the fifth biggest banks in the country in terms of their assets, the second group includes the rest of the banks /smaller banks/ and the third group includes the branches of foreign banks.

[2] In November, 2015 the BNB implemented a policy measure attempting to prevent the banks to accumulate excess reserves by applying a negative interest rate on them. This measure was partially successful as it led to slight decline in the amount of excess reserves after its implementation.

decreased from 10 to 5, June 2014 when KTB was placed under special conservatorship and it was excluded from the reporting and the period between Dec., 2009-Dec., 2011 when the growth rate of assets registered by the banks in second group is higher compared with the growth rate of assets by the banks in the first group. This higher asset growth is determined by the higher growth in lending by the banks in the second group compared with the banks from the first group. This decrease in the lending activity by the banks in the first group was due to the remarkable decrease in lending from mother banks to their subsidiaries which practically defined the lending policy of the subsidiaries in the pre-crisis period. This evidence corresponds to the conclusions made by Haas and Lelyveld (2003) who analyze the stability of lending in Eastern Europe during the business cycle and prove that the subsidiaries of foreign banks decrease their lending activity when there is a downturn in the business cycle in the country where the headquarters of the mother banks are.

In their research Laven et al. (2014) prove that the ratio Loans/Total Assets is lower for the systemically important banks compared with the values of that ratio for smaller banks as the authors conclude that bigger, systemically important banks are prone to involve more in market-based activities instead of lending operations. The dynamics of that ratio both for the Bulgarian banks falling in the first and in the second group show that the value of that ratio is higher for the bigger banks which contradicts the evidence proved by Laven et al. (see Fig. No. 1. Dynamics of Asset Growth and Loans-to-Assets ratio in the Appendix)

The level of concentration of loans, credit expansion and the dynamics of ratios Overdue Loans/Total Loans[3], Allowances for Loan Losses/Total Loans and Allowances for Loan Losses/Total Loans are the main measures for the bank's credit risk as the last two indicators show the extent to which the bank is prepared to bear the losses from its lending portfolio due to clients' impossibility to repay their loans. Higher values of the last two ratios indicate that the bank has a better back-up against losses arising from bad loans. Comparing the dynamics of the three indicators for the banks from the first and the second group the following conclusions could be made: the level of overdue loans is lower for the banks from the second group as on average basis that ratio for banks from the first group (the systemically important banks) is by 1,14% higher. This explains the dynamics of Allowances for Loan Losses/Total Capital and Allowances for Loan Losses/Total Loans ratios (see Fig. No. 2 Dynamics of overdue Loans, Allowance for Loan Losses-to-Total Capital ratio, Allowance for Loan Losses-to-Total Loans ratio). The higher level of the allowances for loan losses is not due to more prudent policy of the banks' management and better safeguards against loan losses but due to the necessity of backing up the higher level of bad loans in the banks' balance sheets, which has been problematic since the aftermath of the global financial crisis.

Loans-to-Deposits ratio is also an indicator for the credit risk of the bank. Sharp increase in that ratio indicates that the bank has undertaken credit expansion which can be a prerequisite for more risk concentration. The higher values of the ratio for the banks in the first group can be explained by more aggressive lending policy or better acceptance of the banks' products and services by the market. The reciprocal ratio indicates what portion of the necessary resources for lending is provided by the attracted deposits and to what extent the bank relies on them. Deposits are sustainable source of funding and the high value of the ratio is an indicator for the bank's stability. The high value of the ratio also indicates that the banks are more oriented to typical banking activities as attracting deposits rather than to market based activities, e.g. investment services which are riskier. The average values of the ratio around 100% for both banking groups (104,7% for the banks in the first group and 99,4% for the banks in the second group) indicate the explicit dominance of deposits as a source of funding for the banks in Bulgaria. The decrease in the ratio since March, 2009 is not a result from a change in the market policy of the banks in both groups but it is due to the decreasing lending activities of the banks as a result of the global financial crisis and the higher dependence on deposits attracted on the local market as a source of funding[4]. The increase of deposits attracted by the systemically important banks

[3] The dynamics of that ratio is not presented in the paper as comparable data are available as of 2011.

[4] The majority of the Bulgarian banks /78%/ are subsidiaries of foreign banks and before the global financial crisis the resource provided by the mother banks contributed to the credit expansion that was evident on the local market. In the aftermath of the crisis the Bulgarian banks should rely entirely on the local market to attract resources which led to an increase in the interest rates both on loans and deposits on the local market.

is more sensitive to the risk on a systemic level because depositors implicitly consider the higher possibility for intervention by the state and bailing out due to the TBTF doctrine. Demirguc-Kund & Huizinga (2011) prove that the increase of deposits by the systemically-important banks is weaker compared with the big and medium sized banks. Depositors can discipline the banks with riskier market behavior by withdrawing their deposits or negotiating higher interest rates. In general this statement is correct but in practice it is difficult to be realized as depositors do not have objective and inside information about the risk profile of the bank and replacing deposits from one bank to another requires certain efforts by the clients. The higher values of the ratio for the systemically important banks in Bulgaria are due to their dominance on the credit market and more aggressive lending policy compared with the smaller banks. (see Fig. No. 3 Loans-to-Deposits ratio in the Appendix)

The higher value of the ratio Own Capital/Total Assets indicates better capacity of the bank to absorb losses and more stability against external shocks. The increase of the ratio indicates better ability by the bank to mitigate the negative effects arising from its overexposure to risky assets and/or off balance operations. As a result of the global financial crisis a new macro prudential measure was implemented with the new CRR/CRD IV package for the EU banks – the leverage ratio[5]. Despite Own Capital/Total Assets ratio is different than the leverage ratio as it is defined in accordance with the CRR it is worth to note that the values of the ratio for both banking groups in Bulgaria is comparatively high and that ratio constantly grows after the global financial crisis[6]. The higher values of the ratio for the systemically important banks in the country gives grounds to make a conclusion for their higher stability compared with the medium sized and small banks. (see Fig. 3 Dynamics of Total Capital-to-Total Assets ratio in the Appendix). Considering the values of capital (total capital adequacy and Tier 1 capital adequacy) banks in both groups have similar levels of capital measured by the total capital adequacy ratio and Tier 1 capital adequacy ratio. Assessing the dynamics of the total capital adequacy ratios and Tier 1 capital adequacy ratios for the banks falling in both groups we can conclude that the systemically important banks do not tend to maintain lower levels of capital compared with medium sized and small banks (see Fig. No. 3 Dynamics of Total capital adequacy and Tier 1 Capital Adequacy ratios for banks in the first and the second group). However, during the period between September, 2013 – September, 2014 the banks in the second group tend to increase their Tier 1 and Total capital adequacy ratios which can be interpreted as an incentive for more prudent behavior and more stability by those banks. A specific feature for the Bulgarian banks are the close values of the Tier 1 and Total capital adequacy ratios, which means that the majority of the bank's capital consists of capital instruments classified as Tier 1 capital. The Bulgarian banking system is oriented to traditional banking operations, e.g. as deposit taking and lending activities, and Bulgarian banks do not tend to issue complex instruments that can be included in the supplementary (Tier 2) capital. This specific feature of the Bulgarian banks should be considered when analyzing the dynamics of the capital ratios for the systemically important and medium sized and small banks.

The main profitability indicators for the banks are the return on assets /ROA/, return on equity /ROE/, net interest margin and net non-interest margin /net margin from fees and commissions/. ROA is an indicator for the efficiency of the bank's management, e.g. the higher values of ROA indicate that the bank successfully generates revenues from the operations in its asset side. ROE is an approximator for the profitability generated by the shareholders for the invested capital. The net interest margin is an indicator for the spread generated by the bank through the strict control and management of the interest bearing assets and the cheapest usage of the attracted resources. ROA and ROE are linked through the following equation $ROE = ROAx\frac{Total\ amount\ assets}{Own\ capital}$, which shows that the return of the shareholders' capital is very sensitive to the way in which the bank finances its

[5] According to the CRR the leverage ratio is calculated as the ratio between Tier 1 Capital/Total Amount of Balance sheet and Off-Balance sheet Assets. According to the requirements the value of the leverage ratio should not be lower than 3%. By this requirement a minimum level of capital is implemented through which the bank can fund its balance sheet and off-balance sheet operations.

[6] The figure representing the dynamics of Tier 1 Capital Adequacy and Total Capital Adequacy for both banking groups shows a small difference between the Tier 1 and Total Capital adequacy ratios which is due to the fact that the Bulgarian banks hold a small amount of instruments that are included in the supplemented capital.

operations in the asset side of the balance sheet /whether it is done through the accumulation of more debt by the bank or more capital/. The bank may have lower values of ROA but it may generate higher ROE through increasing its financial leverage. In the aftermath of the global financial crisis the values of ROA and ROE fell sharply but as of September, 2013 they started to increase on a constant basis both for the banks falling in the first and in the second group. Comparing the dynamics of these two indicators for both groups the systemically important banks show better performance compared with the medium sized and small banks (see Fig. No. 4. Dynamics of ROA and ROE for the Banks in the 1st Group and the 2nd Group in the Appendix).

Demirguc-Kunt and Huizinga (2011) prove that the banks that generate higher share of net non interest income from fees and commissions are riskier. The income from fees and commissions is a part of the banks' non interest income and it consists of fees and commissions that the bank collects on payment operations, investment services, depository and custodian services, securitization, advisory services, etc. Considering this we can argue that higher values of the net income from fees and commissions generated by the systemically important banks compared with the medium sized and small banks indicates that systemically important banks generate higher profits at higher levels of risk. However, regarding the Bulgarian banking system the increase of the share of the net income from fees and commissions is a part of the banks' strategy for both groups in the country to increase their net income in the period of decreasing interest margins in the aftermath of the global financial crisis. In order to compensate the decreasing interest spreads banks increase the fees and commissions on the products and services offered to their clients. The dynamics of the data for the net interest margin and net non interest margin show that as of December, 2006 the banks in the first group (systemically important banks) show higher values for both indicators compared with the medium sized and small banks as the spread for the net interest margin is even bigger compared with the spread for the net non interest margin (see Fig. No. 5. Dynamics of Net Interest Margin and Net Non Interest Margin for the Banks in the 1st Group and the 2nd Group).

Fig. No. 6 shows the dynamics of the liquidity ratios, deposits' growth and assets' growth both for the banks falling in the 1st and in the 2nd group. The analyses of that dynamics show that medium sized and small banks maintain higher liquidity compared with the systemically important banks. This can be explained by the policy followed by the medium sized and small banks to be better backed up against possible withdrawals of resources but it can be a sign for better liquidity management by the systemically important banks (the banks have to trade off between maintaining higher levels of liquidity and profitability). Considering the dynamics of the deposits' growth and assets' growth the medium sized and small banks show more aggressive behavior in the pre-crisis period but in the post crisis years specific behavior cannon be distinguished by the banks falling in the 1st and in the 2nd group. One period – June, 2014 – shows a significant drop in the deposits growth and assets' growth by the banks in the 2nd group but this is due to the exclusion of KTB (the fourth biggest bank) from the 1st group and its replacement by a bank from the second group which determined the dynamics of the indicators in the 2nd group.

4. Market Discipline, Banking Strategy and Performance – Systemically Important vs. Medium Sized and Small Banks

The descriptive statistics data for both banking groups show higher maximum values of the Loan-to-Deposits ratio, Liquidity ratio, ROA, ROE, Net interest margin, Own capital-to-Total Assets ratio and Tier 1 Capital adequacy ratio that are reported for the banks falling in the first group while higher maximum values are reported for the Overdue loans ratio and Total capital adequacy ratio for the banks falling in the second group. However, comparing the values of standard deviation for the indicators in Table No. 1 and Table No. 2 higher values are reported for all indicators for the banks falling in the first group compared with the values of the standard deviation for the banks falling in the second group. The values of the standard deviation for Loans-to-Deposits ratio, Tier 1 capital adequacy ratio and Total capital adequacy ratio are approximately the same for the banks falling in the first and in the second group. Considering the values of skewness for the indicators in Table No. 1 and Table No. 2 we can conclude that the data for total assets for the banks from the first group are symmetrically distributed while the data for ROE are highly positively skewed and the data for Own

capital-to-Total assets ratio are highly negatively skewed. The data for ROE and Allowances for loan losses-to-Total assets ratio are highly positively skewed for the banks falling in the second group as the data set for total assets is highly negatively skewed. Assumption for extreme values in the data sets can be done for the data set Own capital-to-Total assets ratio for the banks in the first group and for the data set Allowances for loan losses-to-Total assets for the banks falling in the second group.

The correlation tables in the Appendix give grounds to distinguish specific behavior of the banks falling in the first group. There is a strong positive correlation between the bank's size and liquidity ratio and total capital adequacy ratio and strong negative correlation between the bank's size and Loans-to-Deposits ratio as well as the bank's size and Loans-to-Total assets ratio. Considering the strong positive relationship between the bank's size and liquidity ratio and bank's size and total capital adequacy ratio we can conclude that systemically important banks in Bulgaria are not prone to risky behavior and maintain high levels of liquidity and capital which is a prerequisite for their stability. The high negative correlation between the banks' size and Loan-to-Deposit ratio and bank's size and Loans-to-Total assets ratio can be explained with the fact that lending activities of the systemically important banks are seriously influenced by the global financial crisis and huge amounts of banks' assets are held in liquid assets and excess reserves at the Central bank. Considering the results in Table No. 4 there is no significant correlation between the banks' size and the investigated indicators for the banks in the second group contrary to results that are reported for the systemically important banks. The data show strong negative correlation between Loans-to-Deposits ratio and Liquidity ratio both for the banks falling in the first group and in the second group. This indicates that deposits' growth is supported by an increase in the liquid assets enabling the banks to back up any possible deposit withdrawals by the clients. There is a strong positive correlation between the overdue loans and Own capital-to-Total assets ratio for the medium sized and small banks contrary to the results that are achieved for the systemically important banks where there is a weak positive correlation. We can conclude that when overdue loans increase smaller banks tend to increase their capital in order to create buffers against possible losses arising from overdue loans.

The analyses of the correlation coefficients for the systemically important banks and medium sized and small banks do not confirm the suggestion that there is a structural reason for the Bulgarian banks to become large, to have lower capital, instable funding and to be more oriented to performing market based activities compared to medium sized and small banks. Large banks in Bulgaria accumulate sufficient levels of capital and the increase in the bank size (market expansion) is supported by an increase of capital. Large banks rely on deposits as a main source of funding in the same manner as medium sized and small banks.

A major issue when the bank's size is discussed is whether the bank's size affects market discipline. Banks' depositors can "discipline" the bank in two ways: either by requiring higher interest rates on the deposits they place with the bank or by withdrawing deposits from the bank that they consider as risky. We describe here the market discipline by investigating the interaction between the deposits' growth and bank's size, bank's capital and ROA. Table No. 5 reports the results of the regression modeling of those indicators. The higher estimated positive coefficient of the bank's size interaction variable in deposits' growth regression can be interpreted as enhanced market discipline by the systemically important banks in Bulgaria compared with medium sized and small banks. The equity variable shows insignificant positive value for the banks falling in the second group which can be interpreted that depositors in medium sized and small banks do not distinguish them on the basis of their capitalization rate. This is different for the systemically important banks where the value of that coefficient is significant and has a negative sign. The negative value of the coefficient before the Tier 1 capital indicates riskier behavior by the systemically important banks compared with the medium sized and small banks. Systemically important banks in Bulgaria are more aggressive on the deposit market and the clients distinguish them as TBTF banks as they are much more willing to place their resources at those banks. Considering the significant negative coefficient for ROA as independent variable for the systemically important we could suggest that their expansion on the deposit market has higher influence on the return that those banks generate compared with the medium sized and smaller banks.

We also consider how the bank's size affects the banking performance by investigating the influence of the bank's size on ROA and Z-score. ROA is calculated as $\frac{Net\ Income}{Total\ Assets}$ and Z-score is an indicator of the bank's solvency as it is calculated as $\frac{ROA + \frac{Total\ Capital}{Total\ Assets}}{S\tan dard\ Deviation\ of\ ROA}$. Table No. 6 shows the results of the regression proxies for bank's performance. Generally, larger banks tend to have higher ROA compared with medium sized and smaller banks. In the ROA regression the total assets variable shows insignificant negative values both for the banks falling in the first and in the second group. We can assume that the bank's size does not have a significant role on the bank's return and the size does not give advantage to the systemically important banks regarding the return they generate on their operation. Analyzing the Z-score regressions the assets' variable obtains a negative coefficient for the systemically important banks but it has a positive one for the medium sized and small banks. Considering this reports systemically important banks tend to be riskier that the medium sized and small banks. The decrease in the absolute size of the systemically important banks leads to their better solvency while the medium sized and small banks can have a stable increase in absolute terms as there is a strong positive relationship between the banks' size and the solvency ratio. The results for the systemically important banks show stronger positive relationship between the Tier 1 capital ratio and the bank's solvency, which indicates higher capital stability for the systemically important banks.

We estimate the influence of the bank's size on its business strategy by investigating how the bank's size affects the Loan-to-Deposits ratio, net non-interest margin and net interest margin (Table No. 7 Business Strategy). The coefficient for total assets has a positive value for the banks in the first and in the second group. The higher significance for the banks falling in the first group confirms our statement that systemically important banks in Bulgaria are oriented to typical banking activities and rely on their lending operations to generate income instead of market based operations, e.g. securities. The Tier 1 capital adequacy obtains negative coefficients with similar values both for the banks falling in the first and in the second group. The negative values can indicate that bank's expansion in terms of assets brings higher risks both for the systemically important and medium sized and small banks. The higher positive significance of the Provisions-to-Loans ratio for the systemically important banks indicates that the expansion of those banks on loan market is better backed up compared with the medium sized and small banks. In the net non interest margin regression neither bank's size, nor the capital and provisions enter with statistically significant coefficients both for the banks falling in the first and in the second group. Similar results are obtained for the net interest margin regression. Systemically important banks in Bulgaria do not have higher dependence on the income generated from fees and commission and they do not take advantage in performing activities from which they can generate noninterest income compared with the smaller banks. We can make the conclusion that the systemically important banks do not have market behavior that distinguishes them significantly from the medium sized and small banks and they are not oriented to performing market based activities instead of typical banking operations.

5. Conclusions

During the global financial crisis and in the post crisis period the Bulgarian banking system maintains high levels of capital, liquidity and increasing Deposits-to-Loans ratios as well as positive values of ROA and ROE. The Bulgarian banks tend to offer typical bank products and services to their clients instead of market based products and services. Systemically important banks in Bulgaria show different behavior than the European and global systemically important banks. They are oriented to traditional banking activities, they do not attract resources at lower costs, they attracts sustainable resources of funding and high levels of capitalization. The analyses of key banking indicators for the Bulgarian banking system for the systemically important banks and medium sized and small banks in

the paper show that systemically important banks do not create systemic risk and their market behavior and business strategy does not differ from that of the medium sized and small banks.

Systemically important banks in Bulgaria maintain high levels of capital contrary to the European and global systemically important banks, loans have a significant part in the banks' portfolios, they rely on deposits as a main source of funding and the increase in the net non-interest income is a part of the business strategy both the systemically important and medium sized banks. The market expansion of the systemically important banks is supported by more capital compared with the medium sized and small banks. Considering the tendencies in the deposit growth systemically important banks continue to be accepted by the market as TBTF banks despite the failure of the fourth biggest bank in the country in 2014 which was mainly due to fraudulent banking practices. Analyzing key confidents for the systemically important banks and medium sized and small banks gives us grounds to conclude that systemically important banks in the country work in the same segments of traditional banking – deposits taking and lending – as medium sized and small banks.

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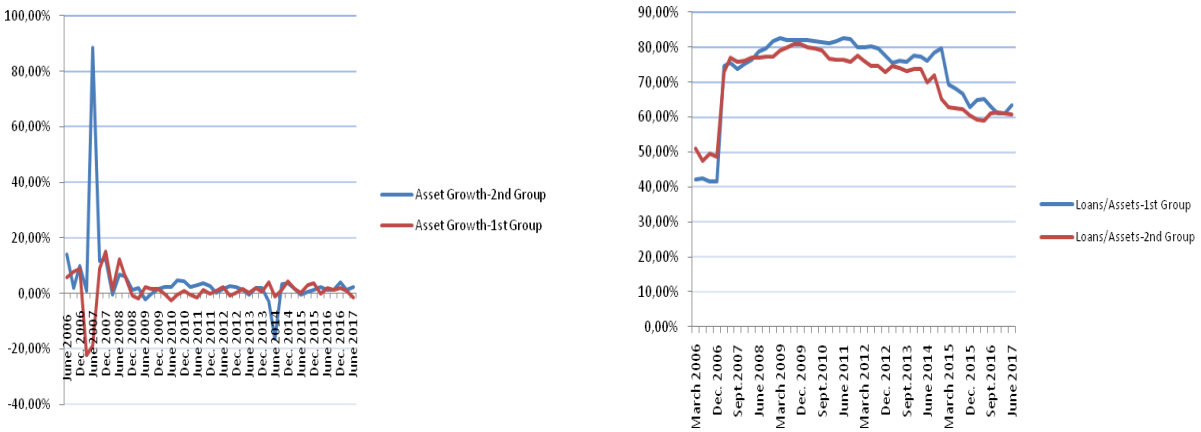
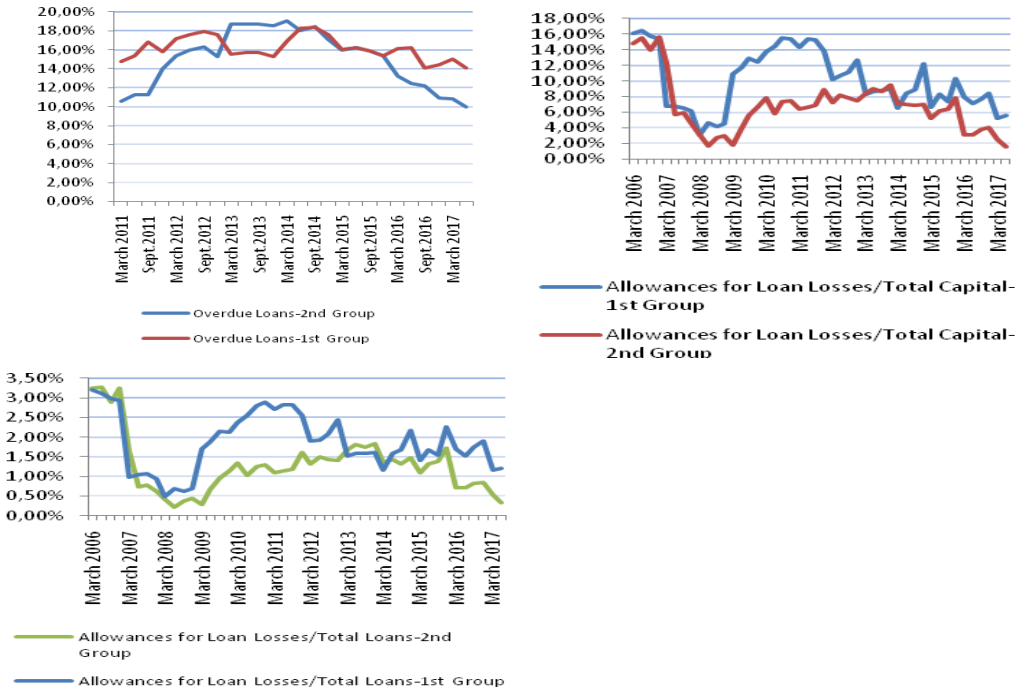
Appendix



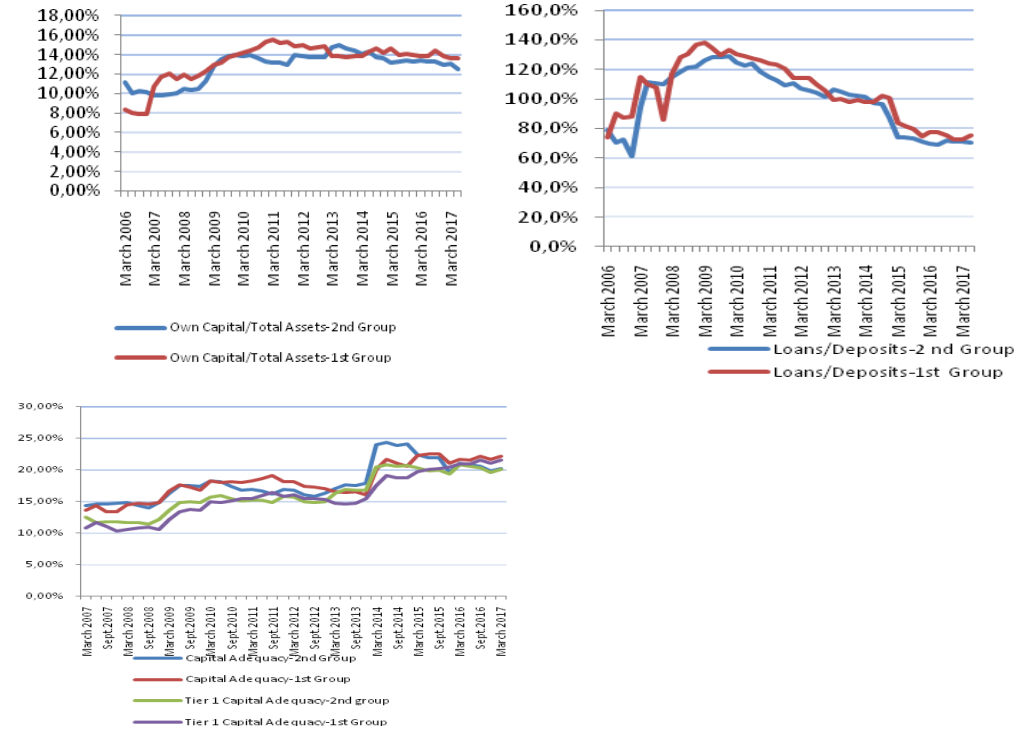
Source: *BNB data, own calculations.*

Figure 1. Dynamics of Asset's Growth and Loans-to-Asset Ratio for the Banks in the 1st and the 2nd Group



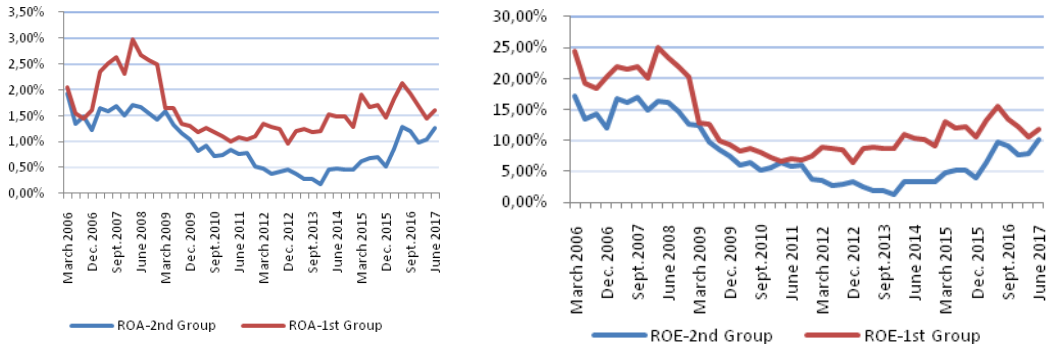
Source: *BNB data, own calculations.*

Figure 2. Dynamics of Overdue Loans, Allowance for Loan Losses-to-Total Capital ratio, Allowance for Loan Losses-to-Total Loans ratio for the Banks in the 1st Group and the 2nd Group



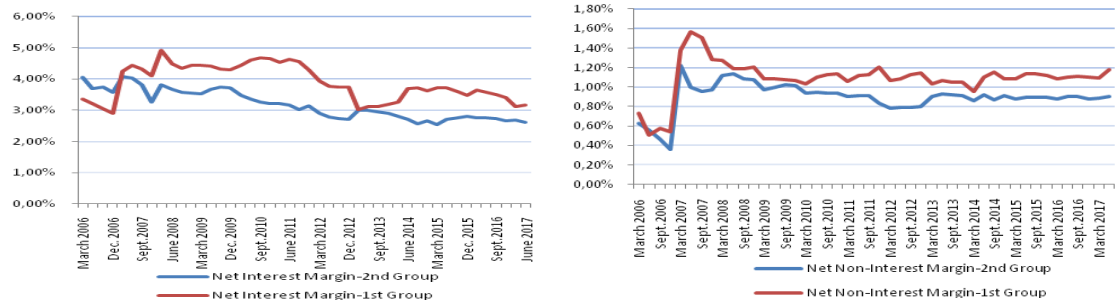
Source: *BNB data, own calculations.*

Figure 3. Dynamics of Own Capital-to-Total Assets ratio, Loans-to-Deposits ratio and Tier 1 and Total Capital Adequacy ratios for the Banks in the 1st Group and the 2nd Group Banks



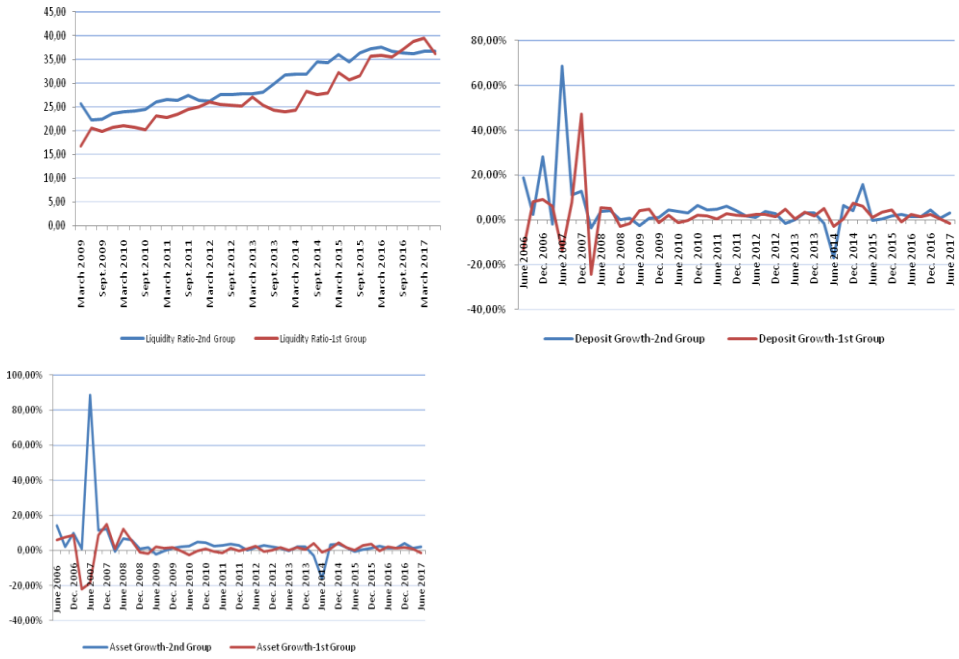
Source: BNB data, own calculations.

Figure 4. Dynamics of ROA and ROE for the Banks in the 1st Group and the 2nd Group



Source: BNB data, own calculations.

Figure 5. Dynamics of Net Interest Margin and Net Non Interest Margin for the Banks in the 1st Group and the 2nd Group



Source: BNB data, own calculations.

Figure 6. Dynamics of Liquidity Ratio, Deposits' Growth and Assets' Growth for the Banks in the 1st Group and the 2nd Group

Appendix

Table 1. Descriptive Statistics for the Banks in the 1st Group /Systemically Important Banks/

	TOTAL ASSETS	LOANS/ DEPOSITS	LIQUIDI-TY RATIO	ROA	ROE	ES FOR LOAN LOSSES/ TOTAL ASSETS	OWN CAPITAL/T OTAL ASSETS	NET INTEREST MARGIN	NET NON INTEREST MARGIN	OVERDUE LOANS	CAPITAL ADEQUA-CY	TIER 1 CAPITAL ADEQUA-CY
Mean	41688411	1.043614	27.14326	0.009799	0.077758	0.011779	0.132565	0.023777	0.006713	0.161491	0.181379	0.157113
Median	40796239	1.037807	25.30000	0.008921	0.064381	0.009362	0.138815	0.022970	0.005779	0.159497	0.179890	0.153771
Maximum	53261879	1.381609	39.48577	0.024981	0.203064	0.029317	0.154865	0.046517	0.012810	0.183787	0.225490	0.214878
Minimum	26672558	0.721165	16.81000	0.002529	0.016329	0.001209	0.078865	0.007577	0.001830	0.140727	0.133027	0.102887
Std. Dev.	5970985.	0.212931	6.075154	0.005299	0.048533	0.007763	0.019755	0.011417	0.003360	0.012361	0.028005	0.034884
Skewness	-0.001530	-0.074633	0.566415	0.917798	1.175992	0.660394	-1.560686	0.233491	0.192696	0.180716	0.037210	0.114042
Kurtosis	3.132806	1.686439	2.281672	3.563960	3.843689	2.313960	4.704862	1.956500	1.728360	2.153835	1.945885	1.965265

Table 2. Descriptive Statistics for the Banks in the 2nd Group /Medium Sized and Small Banks/

	TOTAL ASSETS	LOANS/ DEPOSITS	LIQUID I-TY RATIO	ROA	ROE	FOR LOAN LOSSES/ TOTAL ASSETS	OWN CAPITAL/ TOTAL ASSETS	NET INTEREST MARGIN	NET NON INTEREST MARGIN	OVERD UE LOANS	CAPITA L ADEQUA-CY	TIER 1 CAPITAL ADEQUA-CY
Mean	28740881	0.994440	30.07757	0.005630	0.047369	0.007984	0.127617	0.019380	0.005453	0.150073	0.180668	0.162251
Median	31671304	1.048670	27.89500	0.004711	0.039048	0.006401	0.132983	0.018844	0.004865	0.156229	0.174080	0.156260
Maximum	38417669	1.289050	37.57039	0.015020	0.149604	0.032556	0.149156	0.037254	0.010781	0.190142	0.242732	0.207711
Minimum	7478490.	0.616316	22.19000	0.000953	0.006453	0.000719	0.097541	0.006352	0.001561	0.099499	0.139539	0.113705
Std. Dev.	8628732.	0.209402	5.068457	0.003729	0.036404	0.006443	0.015601	0.009145	0.002663	0.030102	0.029810	0.031450
Skewness	-1.220466	-0.324940	0.143400	0.835326	1.139084	1.518680	-0.837897	0.198382	0.262157	-0.244150	0.672498	0.096933
Kurtosis	3.602944	1.704917	1.537200	2.824105	3.491643	5.981664	2.272509	1.890171	1.844867	1.697968	2.438248	1.788490

Table 3. Correlation Coefficients for the Banks in the 1st Group /Systemically Important Banks/

	Total Assets	Loans/Deposits	Liquidity Ratio	ROA	ROE	Allowances/Total Loans	Own Capital/Total Assets	Net Interest Margin	Net Non Interest Margin	Overdue Loans	Total Capital Adequacy	Loans/Total Assets	Allowances/Total Capital
Total Assets	1.000000	-0.942806	0.957893	0.411933	0.444275	-0.151610	-0.619078	-0.085915	0.016158	-0.384151	0.799057	-0.945691	-0.263585
Loans/Deposits	-0.942806	1.000000	-0.902128	-0.395792	-0.434590	0.191950	0.756400	0.117416	-0.017469	0.371402	-0.697087	0.965384	0.302365
Liquidity Ratio	0.957893	-0.902128	1.000000	0.354503	0.380078	-0.134763	-0.514080	-0.096111	-0.010888	-0.394648	0.763897	-0.951644	-0.254770
ROA	0.411933	-0.395792	0.354503	1.000000	0.997944	0.704936	-0.236097	0.802693	0.870151	-0.128935	0.251975	-0.355130	0.629669
ROE	0.444275	-0.434590	0.380078	0.997944	1.000000	0.674332	-0.289851	0.774305	0.850619	-0.153831	0.262885	-0.390011	0.596365
Allowances/Total Loans	-0.151610	0.191950	-0.134763	0.704936	0.674332	1.000000	0.248733	0.974079	0.936904	0.048467	-0.186904	0.178486	0.987483
Own Capital/Total Assets	-0.619078	0.756400	-0.514080	-0.236097	-0.289851	0.248733	1.000000	0.172229	0.014110	0.240222	-0.241609	0.639593	0.292249
Net Interest Margin	-0.085915	0.117416	-0.096111	0.802693	0.774305	0.974079	0.172229	1.000000	0.979957	0.071909	-0.112277	0.129944	0.961044
Net Non Interest Margin	0.016158	-0.017469	-0.010888	0.870151	0.850619	0.936904	0.014110	0.979957	1.000000	0.032155	-0.095642	0.016649	0.912024
Overdue Loans	-0.384151	0.371402	-0.394648	-0.128935	-0.153831	0.048467	0.240222	0.071909	0.032155	1.000000	-0.099084	0.500951	0.125469
Total Capital Adequacy	0.799057	-0.697087	0.763897	0.251975	0.262885	-0.186904	-0.241609	-0.112277	-0.095642	-0.099084	1.000000	-0.697539	-0.273746
Loans/Total Assets	-0.945691	0.965384	-0.951644	-0.355130	-0.390011	0.178486	0.639593	0.129944	0.016649	0.500951	-0.697539	1.000000	0.304735
Allowances/Total Capital	-0.263585	0.302365	-0.254770	0.629669	0.596365	0.987483	0.292249	0.961044	0.912024	0.125469	-0.273746	0.304735	1.000000

Table 4. Correlation Coefficients for the Banks in the 2nd Group /Medium Sized and Small Banks/

	Total Assets	Loans/Deposits	Liquidity Ratio	ROA	ROE	Allowances/Total Loans	Own Capital/ Total Assets	Net Interest Margin	Net Non Interest Margin	Overdue Loans	Total Capital Adequacy	Loans/Total Assets	Allowances/Total Capital
Total Assets	1.000000	-0.204618	0.163268	0.028939	0.028977	0.103696	0.294373	0.095802	0.095925	0.166380	-0.185094	-0.159855	0.082022
Loans/Deposits	-0.204618	1.000000	-0.944632	-0.455148	-0.464151	0.169586	0.502886	0.044848	-0.058021	0.238933	-0.574148	0.990946	0.272554
Liquidity Ratio	0.163268	-0.944632	1.000000	0.375224	0.382360	-0.103530	-0.416759	-0.020881	0.104597	-0.097330	0.735927	-0.942435	-0.209738
ROA	0.028939	-0.455148	0.375224	1.000000	0.999160	0.223823	-0.549755	0.569992	0.600447	-0.553806	0.079917	-0.454607	0.194593
ROE	0.028977	-0.464151	0.382360	0.999160	1.000000	0.199324	-0.572583	0.549455	0.581778	-0.572654	0.079679	-0.463888	0.169728
Allowances/Total Loans	0.103696	0.169586	-0.103530	0.223823	0.199324	1.000000	0.279133	0.916934	0.900174	0.339679	-0.163496	0.180352	0.989906
Own Capital/Total Assets	0.294373	0.502886	-0.416759	-0.549755	-0.572583	0.279133	1.000000	0.017637	-0.009429	0.804120	-0.143134	0.509439	0.289119
Net Interest Margin	0.095802	0.044848	-0.020881	0.569992	0.549455	0.916934	0.017637	1.000000	0.984535	0.027865	-0.170815	0.054581	0.914358
Net Non Interest Margin	0.095925	-0.058021	0.104597	0.600447	0.581778	0.900174	-0.009429	0.984535	1.000000	0.056735	-0.044485	-0.055178	0.878872
Overdue Loans	0.166380	0.238933	-0.097330	-0.553806	-0.572654	0.339679	0.804120	0.027865	0.056735	1.000000	0.242966	0.268113	0.316198
Total Capital Adequacy	-0.185094	-0.574148	0.735927	0.079917	0.079679	-0.163496	-0.143134	-0.170815	-0.044485	0.242966	1.000000	-0.581927	-0.241689
Loans/Total Assets	-0.159855	0.990946	-0.942435	-0.454607	-0.463888	0.180352	0.509439	0.054581	-0.055178	0.268113	-0.581927	1.000000	0.286988
Allowances/Total Capital	0.082022	0.272554	-0.209738	0.194593	0.169728	0.989906	0.289119	0.914358	0.878872	0.316198	-0.241689	0.286988	1.000000

Table 5. Market Discipline

MARKET DISCIPLINE-FIRST GROUP (SYSTEMICALLY IMPORTANT BANKS)			MARKET DISCIPLINE-SECOND GROUP (MEDIUM SIZED AND SMALL BANKS)		
Dependent Variable: D(DEPOSIT_GROWTH)			Dependent Variable: D(DEPOSIT_GROWTH)		
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	-0.021426	0.021560	C	-0.034320	0.022090
DLOG(TOTAL_ASSETS)	1.444138	0.412869	DLOG(TOTAL_ASSETS)	0.971863	0.196923
D(TIER_1_CAPITAL)	-0.899652	3.063107	D(TIER_1_CAPITAL)	0.170410	2.669927
D(ROA)	-21.67921	7.177563	D(ROA)	-10.47176	13.10348
R-squared	0.428379	Mean dependent var	R-squared	0.436653	Mean dependent var

Table 6. Bank Performance

BANK ACTIVITY - FIRST GROUP (SYSTEMICALLY IMPORTANT BANKS)			BANK ACTIVITY - SECOND GROUP (MEDIUM SIZED AND SMALL BANKS)		
Dependent Variable: ROA			Dependent Variable: ROA		
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	0.259817	0.096840	C	0.235381	0.035099
LOG(TOTAL_ASSETS)	-0.013887	0.005521	LOG(TOTAL_ASSETS)	-0.013163	0.002040
R-squared	0.139558	Mean dependent var	R-squared	0.516384	Mean dependent var
Dependent Variable: Z_SCORE			Dependent Variable: Z_SCORE		
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	50.06950	41.50485	C	-73.38946	27.32230
LOG(TOTAL_ASSETS)	-1.496278	2.445517	LOG(TOTAL_ASSETS)	6.211996	1.666266
TIER_1_CAPITAL	33.09168	10.28340	TIER_1_CAPITAL	23.11098	13.50419
R-squared	0.430508	Mean dependent var	R-squared	0.526605	Mean dependent var

Table 7. Business Strategy

BUSINESS STRATEGY - FIRST GROUP (SYSTEMICALLY IMPORTANT BANKS)	BUSINESS STRATEGY - SECOND GROUP (MEDIUM SIZED AND SMALL BANKS)				
Dependent Variable: LOANS_DEPOSITS			Dependent Variable: LOANS_DEPOSITS		
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	-4.217830	4.879637	C	-0.490536	1.780403
LOG(TOTAL_ASSETS)	0.350275	0.287506	LOG(TOTAL_ASSETS)	0.139124	0.108724
TIER_1_CAPITAL	-5.835087	1.216642	TIER_1_CAPITAL	-5.431599	0.832375
PROVISIONS_LOANS	5.770691	2.923140	PROVISIONS_LOANS	1.066950	4.554412
R-squared	0.598826	Mean dependent var	R-squared	0.600025	Mean dependent var
Dependent Variable: NNIM			Dependent Variable: NNIM		
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	0.002596	0.080502	C	0.028076	0.024926
LOG(TOTAL_ASSETS)	0.000267	0.004743	LOG(TOTAL_ASSETS)	-0.001268	0.001522
TIER_1_CAPITAL	-0.026723	0.020072	TIER_1_CAPITAL	-0.022381	0.011654
PROVISIONS_LOANS	0.353488	0.048224	PROVISIONS_LOANS	0.443357	0.063763
R-squared	0.596965	Mean dependent var	R-squared	0.588928	Mean dependent var
Dependent Variable: NIM	Dependent Variable: NIM				
Variable	Coefficient	Std. Error	Variable	Coefficient	Std. Error
C	-0.210999	0.224748	C	0.099960	0.080674
LOG(TOTAL_ASSETS)	0.014039	0.013242	LOG(TOTAL_ASSETS)	-0.004262	0.004927
TIER_1_CAPITAL	-0.164862	0.056036	TIER_1_CAPITAL	-0.110020	0.037717
PROVISIONS_LOANS	1.345867	0.134635	PROVISIONS_LOANS	1.486115	0.206370
R-squared	0.738994	Mean dependent var	R-squared	0.626616	Mean dependent var

EFFICIENCY IN ALGERIAN BANKING INDUSTRY: DOMESTIC VERSUS FOREIGN BANKS

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Abstract

The banking sector in Algeria has witnessed many reforms in order to improve its performance. For this purpose, the reforms have focused on opening the banking sector to private and foreign investment. Therefore, many foreign banks have installed in the Algerian market since 1990. Based on the aforementioned, the study tries to examine the efficiency of the banks in Algeria and makes a comparison between the foreign banks and domestic banks in term of efficiency during the period of 2000-2012.For this end, the study uses annual data of 15 commercial banks operated in Algeria, in which 10 foreign and 05 domestic. Data is collected from the Bank-scope database. The study uses the Data Envelopment Analysis model (DEA) with respect to the input-orientation to estimate the bank's efficiency. It adopts the intermediation approach, in which it is assumed that bank uses two inputs; total deposits and interest expenses, and produces three outputs; total loans, interest income and non-interest income. Technical efficiency is decomposed into pure technical efficiency and scale efficiency to determine the source of the bank technical inefficiency.

The results indicate that the technical efficiency of the Algerian banks has progressed during the period of the study, with an average equals 0.77, which implies that the Algerian banks have wasted 23 % of inputs to produce the same level of outputs. Foreign banks have displayed a higher technical efficiency compared to domestic banks. Foreign and domestic banks have displayed similar pure technical efficiency. Moreover, foreign banks have realized higher scale efficiency meaning that the domestic banks failed to operate at the optimal size. The failure of domestic banks in operating at the optimal size may be attributed to the banking reforms and the entry of foreign banks which increased the competition in the banking sector.

Keywords: Efficiency, Data Envelopment Analysis, Foreign Banks, Domestic Banks, Algeria.

1. Introduction

Analyzing the banks' efficiency has received an increasing attention among researchers regarding the importance of the banking efficiency. For the policy-makers, the banking efficiency allows evaluating the impact of the reforms and policies on the banks' performance. Moreover, banking efficiency is an important indicator for the success of individual banks and the industry as a whole, in which only the efficient banks can maintain their position in a market characterized by increasing competition and rapid technology advances.

It is important for managers and policymakers evaluating and determining how banking sector is becoming more efficient. Thus, as bank's efficiency improves its financial position improves and this enhances the economic development of the country. Moreover, the banking efficiency as an indicator of performance enables examining the banking sector soundness by identifying the elements that strengthen or deteriorate the banking performance.

However, the efficient banking sector is characterized by low market imperfections and a low waste of the financial resources, in which enhances the stability and promotes the economic growth. This

means when banking sector uses its resources efficiently the market imperfection will be eliminated which enhances the banking sector soundness.

In the literature, efficiency is used for several purposes; examining changes for the same bank across several points in time, examining how banks are functioning relative to others in a given market at one point in time (Benchmarking), and examining the deviations from the objective. In addition, efficiency allows measuring the performance of individual banks or banking sector as a whole.

Many studies have tried examining the efficiency of the banking system by comparing the efficiency of different types of banks (Foreign Vs Domestic, Private Vs Public, and Islamic Vs Conventional). Among others ((Kobeissi& Sun, 2010) (Karas, Schoors, & Weill, 2010), (Krafta, Hoflerb, & Paynec, 2006)) compared the efficiency of foreign and domestic banks. They found a strong relationship between the bank's ownership and its efficiency.Moreover, they suggested that the foreign banks outperform the domestic bank in term of efficiency.

This study tries evaluating the efficiency of the banks in Algeria and comparing between foreign and domestic banks in term of Technical Efficiency (TE), Pure Technical Efficiency (PTE) and Scale Efficiency (SE) over the period of 2000-2012.

2. Literature Review

Andries (2012) has examined the determinants of the efficiency and productivity of the banking systems of seven Central and East European (CEE) countries: Bulgaria, Czech Republic, Romania, Slovakia, Slovenia, and Hungary during the period of 2004-2008. Data used were collected from 112 banks in these countries. Two approaches were used to estimate the banks' efficiency; Stochastic Frontier Analysis and Data Envelopment Analysis (DEA). The intermediation approach was used to select the bank's inputs and outputs.Three inputs were used: total deposits and borrowings, fixed assets and total operational expenses, and three outputs: total loans, total investments, and other income.

The finding indicated that the efficiency of banks in CEE countries has increased regarding the increased competition of foreign banks, where the high efficiency score has been realized by the banking sector in Romania and Czech Republic, and the lowest for Slovenia banks. In addition, private banks have outperformed the public banks in term of TE, while in term of productivity, public banks have realized a high increase compared to the private banks. Concerning the assets-size, the medium-size banks exhibit the highest increase in terms of productivity, while the small banks were more efficient than large and medium-size banks.

Assaf, Barros &Matousek (2011) have analyzed the technical efficiency of Saudi banks during the period of 1999-2007. The study has used two-stage DEA model, where in the first stage the bootstrapped DEA- VRS model has been used to measure the efficiency, and in the second stage, the bootstrapped truncated regression model has been used to determine the variables that explain the efficiency's variation. The study has been applied to nine banks operated in Saudi Arabia. In order to determine the banks' inputs and outputs the intermediation approach has been adopted, in which it is suggested that the bank purchases the liabilities to produce earning assets. Accordingly, the study assumed that the banks use three inputs: total employees, fixed assets, total deposits, and produce three outputs: total customer loans, securities, and interbank loans. The study has found that the selected banks have displayed, on average, TE equals 90.21% in 2007, while the lowest score of TE was 86.7%. Moreover, the results have revealed that TE has gradually decreased over the period of 1999-2003 and then has increased consistently until 2007.The results also have revealed that the presence of foreign banks helps to improve the banks' TE by enhancing managerial skills and technical support of banks.

Fethi, Shaban, & Weyman-Jones (2011) have examined the effect of liberalization policy on the Egyptian banks' performance with respect to the bank's ownership and size. They have also investigated the impact of the privatization process of joint-venture banks that started in 1995 on the banks' efficiency and productivity. The study has been applied to fifty five banks during the period of 1984-2002. The study's sample was composed of four public banks, eleven foreign banks, nine private banks and one joint-venture bank. DEA-Malmquist methodology has been used to estimate the banks' productivity and efficiency, in which the model inputs and outputs were selected based on the intermediation approach. The study has assumed that banks use three inputs: general and administrative expenses, fixed assets and total deposits, and produce three outputs: total loans, investments, and other income.

The results have indicated that the liberalization improved the productivity of all forms of banks' ownership except for the joint-venture bank, where in the post-liberalization period the foreign, private, stated-owned banks achieved productivity progress of 9.3%, 3.6%, and 1.4% respectively. Moreover, the results have indicated that all forms of banks in term of ownership and size have displayed a significant decline in productivity during the post-privatization period.

Ataullah & Le (2006) have investigated the impact of economic reforms on the performance of banks in India during 1992-1998. All banks operating in India have been taken into consideration during the period of the study. The study has evaluated the economic reform through fiscal reforms, financial reforms, and private investment liberalization. The banks' efficiency has been estimated using DEA. Concerning the banks' inputs and outputs two models used; the first model includes two inputs: interest expenses and operating expenses, and two outputs: loans and advances, and investments, the second model includes two inputs: interest expenses and operating expenses, and two outputs: interest income and operating income. The results suggested that banks' efficiency has improved during the post-reforms period for all types of banks; public banks, domestic private banks and foreign banks. Moreover, the results of the first model indicated that public banks outperform the private and foreign banks in term of efficiency. The second model indicated that foreign banks have realized high efficiency compared to the public banks.

Cook, Hababou& Liang (2005) have examined the effect of the financial liberalization on the efficiency of the Tunisian banking system. The study was based on data of ten individual banks (five public and five private) from 1992 to 1997. The banks' efficiency has assessed using DEA model, in which the inputs and outputs of the model have been selected based on the intermediation approach. The study has selected two inputs: interest expenses and non-interest expenses, and one output: net profit.

The study findings indicated that TE score varied between the different banks' types, where, public banks have achieved 45.5%, private banks 64.1%, foreign banks 59.1% and local banks 43.9%. In addition, the smallest banks with size less than 1 million TD have achieved more efficiency scores than large banks with size more than 2 million TD. The private banks have outperformed the public banks, in which the public banks display greater inefficiency in both interest and non-interest expenses compared to the private banks. On the other hand, the results have revealed that there is a negative relationship between the banks' efficiency and total non-performing loans, a negative relationship between total assets and efficiency, and positive relationship between banks' ownership (private versus public and foreign versus local) and efficiency.

3. Methodology

3.1. Model Specification

The efficiency measures the banks' ability of maximizing their outputs level without additional inputs or minimizing their inputs level without reducing their outputs. Farrell (1957) developed a measure of the efficiency relying on the linear programming LP. This measure was built on the concept of relative efficiency which implies comparing the position of Decision Making Unit (DMU) with the best production frontier.

In the literature, many methods were used to investigate and analyze the bank efficiency.Thus, there is no consensus on the suitable tool or methodology for evaluating the banks' efficiency. In general, researchers have used at least four different methods; ratio analysis, regression analysis, frontier analysis and other artificial techniques. Some studies have classified the efficiency measures into two broad categories; parametric and non-parametric methods. This study used Data Envelopment Analysis (DEA), which is a non-parametric model. DEA is a suitable to the case of banks that use multi-inputs to produce multi-outputs. In addition, DEA imposes fewer restrictions on the functional form of the efficient frontier, and it is preferable when the sample size is relatively small as the case of this study.

Banker, Charnes, & Cooper (1984) extended (Charnes, Cooper, & Rhodes, 1978) model (CCR). They proposed BCC model that takes in account Variable Return to Scale (VRS) situations.BCC is expressed as follows:

$$\theta^* = \min \theta$$

Subject to

$$\sum_{j=1}^{N} x_{ij}\lambda_j \leq \theta x_{io} \qquad i = 1,2,\dots\dots\dots,m$$

$$\sum_{j=1}^{N} y_{rj}\lambda_j \geq y_{ro} \qquad r = 1,2,\dots\dots\dots,n$$

$$\sum_{j=1}^{N} \lambda_j = 1$$

$$\lambda_j \geq 0 \qquad j = 1,2,\dots\dots\dots,N(1)$$

Where xij is inputs, yrj is outputs,θ is the efficiency score and λ is the weight of DMU_j. When the linear programming problem (1) is solved N times the efficiency score of each DMU is obtained.

SE is the ratio of TE under CCR to PTE under VRS. SE is calculated indirectly by decomposing TE into two components; PTE and SE, as follows: TE = PTE * SE, (Sufian& Abdul Majid, 2007).

3.2. Data and Specification of Inputs and Outputs

The Sample of the study includes 15 commercial banks operating in Algeria between 2000 and 2011. It consists 10 foreign (all private) and 05 domestic (all public). Bank specific data has been sourced from Bank-scope database, which is a worldwide database of the banks' data. The period of the study is selected based on the fact that during this period the banking sector in Algeria has witnessed numerous changes among these changes the openness of the banking sector to the entry of the foreign banks.

The study adopted the intermediation approach for selecting the banks' inputs and outputs. Following (Sufian& Abdul Majid, 2007), (Akhtar 2010), (Yahya, Muhammad & Abdul Hadi, 2012), inputs are (X1) Total deposits, (X2) Interest expenses, while outputs include (Y1) Total loans which include loans to customers and loans and advances to banks, (Y2) Interest income, (Y3) Non-interest income. Table (1) provides descriptive statistics of the banks' inputs and outputs during the period of the study.

Table 1.Descriptive Statistics of Inputs and Outputs (millions (DZD)

All years	Mean	S.D	Maximum	Minimum
Inputs:				
Total deposits	259816.1	68979.21	381565.3	150280
Interest expenses	4366.619	3330.714	11879.55	1744.4
Outputs:				
Total Loans	208321.1	79879.62	348779.4	92744.4
Interest Income	11333.63	3476.048	19113.5	7206
Non-Interest Income	3084.169	2028.798	6250.7	695.1

4. Empirical Results

Table (2) reports the results of banks' efficiency. In general, the mean of TE of banks in Algeria moves from 0.74 in 2000 to 0.81 in 2012, with an average equals 0.77 meaning that banks have wasted on average, 23 % of inputs in their production process.

Table2.Scores of Banks' Efficiencies

Year	Type	Mean of TE Scores	Mean of PTE Scores	Mean of SE Scores
2000	*Domestic Banks*	0.64	0,78	0,81
	Foreign Banks	1	1	1
	All Banks	0.74	0,84	0,87
2001	*Domestic Banks*	0.86	1	0,97
	Foreign Banks	1	0,88	1
	All Banks	0.90	0,91	0,98
2002	*Domestic Banks*	0.74	0,92	0,80
	Foreign Banks	1	1	1

	All Banks	0.81	0,94	0,86
2003	*Domestic Banks*	0.67	0,95	0,71
	Foreign Banks	0.92	0,95	0,97
	All Banks	0.81	0,95	0,86
2004	*Domestic Banks*	0.72	0,96	0,76
	Foreign Banks	0.91	0,94	0,94
	All Banks	0.83	0,95	0,87
2005	*Domestic Banks*	0.65	0,98	0,66
	Foreign Banks	0.97	0,99	0,98
	All Banks	0.84	0,98	0,85
2006	*Domestic Banks*	0.56	0,93	0,61
	Foreign Banks	0.94	0,97	0,97
	All Banks	0.81	0,96	0,84
2007	*Domestic Banks*	0.48	0,94	0,51
	Foreign Banks	0.73	0,88	0,82
	All Banks	0.64	0,9	0,71
2008	*Domestic Banks*	0.38	0,97	0,39
	Foreign Banks	0.73	0,97	0,75
	All Banks	0.61	0,97	0,64
2009	*Domestic Banks*	0.43	0,96	0,45
	Foreign Banks	0.89	1	0,89
	All Banks	0.72	0,98	0,73
2010	*Domestic Banks*	0.57	0,94	0,6
	Foreign Banks	0.80	0,99	0,80
	All Banks	0.72	0,97	0,74
2011	*Domestic Banks*	0.56	1	0,56
	Foreign Banks	0.76	0,97	0,78
	All Banks	0.69	0,98	0,71
2012	*Domestic Banks*	0.70	1	0,70
	Foreign Banks	0.84	0,99	0,85
	All Banks	0.81	0,99	0,82
All years	*Domestic Banks*	0.61	0.94	0.65
	Foreign Banks	0.88	0.97	0.90
	All Banks	0,77	0.94	0.80

Figure (1) indicates that TE of banks in Algeria has declined in 2008 reaching the lowest score (0.61). Foreign banks have realized TE, on average, equals 0.88 meaning that their inputs' waste is 12% only. Moreover, in all the period of the study foreign banks TE scores are higher than TE average of all banks and TE average of domestic banks. In the period of 2002-2006 foreign banks have exhibited stable TE score ranges between 1 and 0.91, after that TE has declined to reach 0.73 in 2007, but it remained always more than the overall and domestic banks scores. In the period of 2009-2012 TE score of foreign has increased, it ranged between 0.89 and 0.84. On the other hand, domestic banks have realized the lowest TE score compared to overall and foreign banks, in which TE's mean ranges between 0.86 in 2001 and 0.38 in 2008. After that TE's mean of domestic banks has increased gradually to reach 0.76 in 2012.

The deterioration of TE's mean of banks in Algeria in 2007-2008 may be attributed to the effects of the international financial crisis 2008. The financial crisis contracted the revenue of oil exportation and consequently reduced the profit of the public banks. On the other hand, the financial crisis has affected foreign banks' performance through the contagion of their parent banks which gravely affected by the crisis.

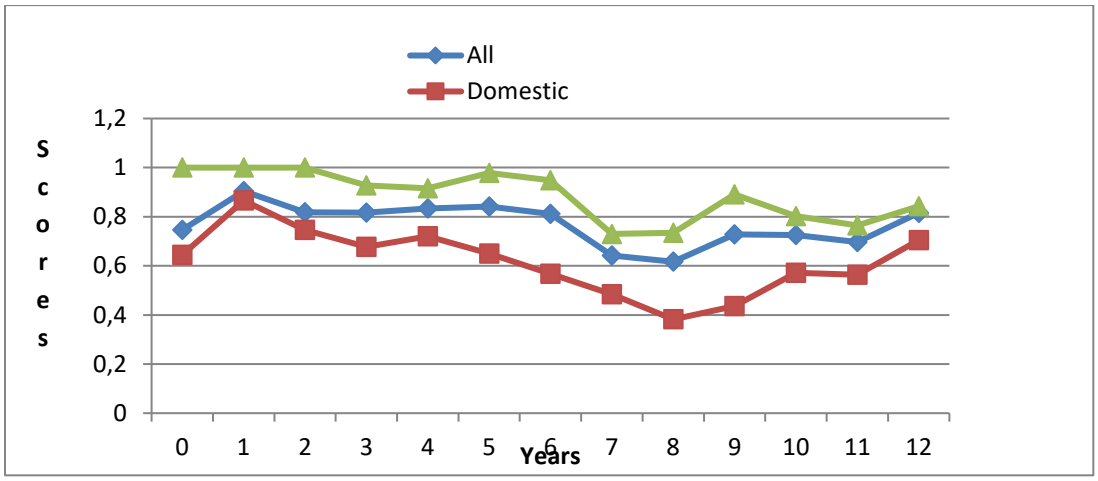

Figure 1.Technical Efficiency of Foreign Vs Domestic Banks

The decomposition of TE into PTE and SE revealed that overall banks in Algeria have improved their PTE gradually, in which PTE scores passed from 0.84 in 2000 to 0.99 in 2012, this means that banks in Algeria have introduced more improvement in their production process to be efficient when transforming the inputs to outputs. Foreign banks have maintained their high level of PTE during the period of the study, with an average equals 0.99. Domestic banks have exhibited 0.78 of PTE in 2000, thereafter; PTE score has increased gradually reaching 1 in 2012. Figure (2) indicates that starting from 2004, foreign and domestic banks have displayed a similar pattern of PTE score implying that domestic banks have tried tracking the foreign banks' performance benefiting from their management practices and advanced technologies.

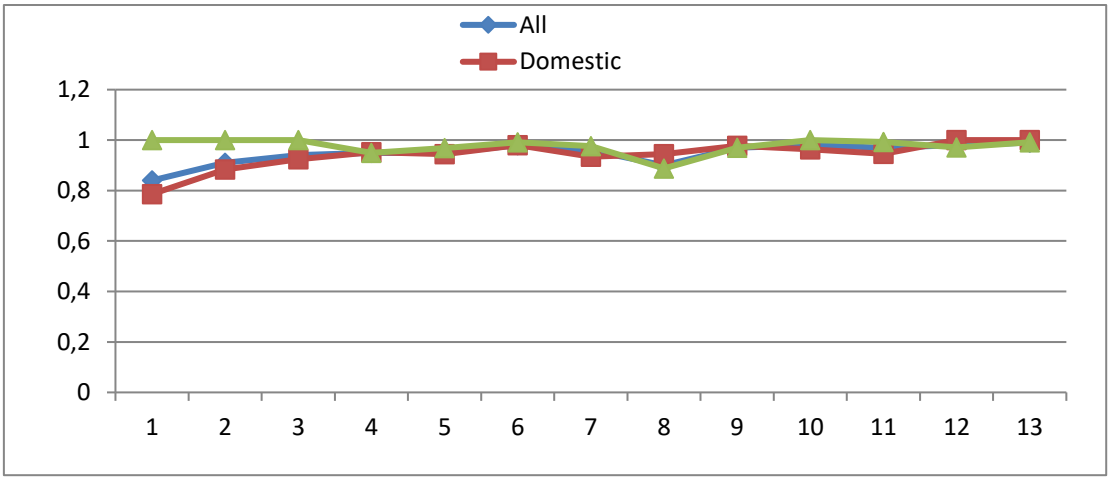

Figure 2. Pure Technical Efficiency of Foreign Vs Domestic Banks

Table (2) revealed that overall banks in Algeria have displayed SE score ranges between 0.98 in 2001 and 0.82 in 2012. This fact demonstrates that the main source of technical inefficiency of banks in Algeria is the scale inefficiency. In other words, the fundamental problem of banks in Algeria is not the management practices and techniques but it is the scale inefficiency, where banks failed to operate on the optimal size. Figure (3) clarifies that there is a clear difference between foreign and domestic banks in SE score. Thus, foreign banks have displayed a high level of SE with little decline in the period of 2007-2012. Starting from 2003, SE's scores of domestic banks have decreased sharply reaching 0.39 in 2008, after that, SE score increased but it remained below the level of 0.8.

The failure of domestic banks in operating at the optimal size may be attributed to the banking reforms imposed by the government which forced domestic banks opening more branches and providing more services. On the other hand, the entry of foreign banks has increased the competition in the banking

sector in Algeria, and this may drive domestic banks to increase their operations' size in order to maintain their market share.

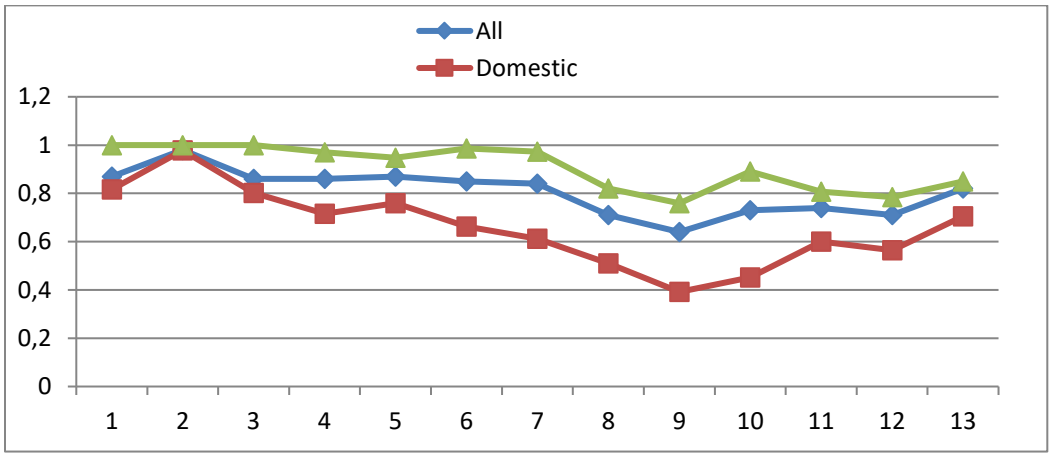

Figure 3. Scale Efficiency of Foreign Vs Domestic Banks

The failure of domestic banks in operating at the optimal size may be attributed to the banking reforms imposed by the government which forced domestic banks opening more branches and providing more services. On the other hand, the entry of foreign banks has increased the competition in the banking sector in Algeria, and this may drive domestic banks to increase their operations' size in order to maintain their market share.

5. Conclusion

This study investigated the banks' efficiency in Algerian over the period of 2000-2012. The Algerian banking system has witnessed many reforms, among these reforms, the permission for the entry of foreign banks in the Algerian market. Therefore, this study tried to make a comparison between foreign and domestic banks in term of efficiency. The study used input-oriented DEA model to estimate the banks' efficiency. It differentiated between three types of efficiency; technical, pure technical and scale efficiencies. This differentiation helps to determine the source of the banks' inefficiency.

The findings revealed that the average technical efficiency of the Algerian banks has improved during the period of study, in which the mean moved from 0.74 in 2000 to 0.81 in 2012. Hence, technical efficiency average of the Algerian banks (0.77) remains below the level exhibited by banks in North America and Europe that operated at levels of 80% to 90%, respectively.

The results indicated that domestic banks tried to improve their pure technical efficiency by tracking the foreign banks' performance benefiting from their advanced technologies and management techniques. On the other hand, the results revealed that foreign banks have outperformed the domestic banks in term of technical efficiency. The superiority of foreign banks in technical efficiency is attributed to their superiority in scale efficiency where domestic banks have suffered from the scale inefficiency, meaning that domestic banks failed to select the appropriate operation size.

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CONCENTRATION OF TURKISH PARTICIPATION BANKING SECTOR IN TURKEY AFTER 2008 GLOBAL CRISIS

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Abstract

A market in which only a few firms operate is considered to be highly concentrated, and vice versa. A highly concentrated market structure is undesirable to the consumer. Measuring the concentration of the banking sector provides some important inferences for the financial sector and its consumers. The first is that if the concentration level is high consumers are likely to face high service fees. Also, the concentration of banking sector shows the fragility of the financial sector. When a financial crisis occurs, the highly concentrated banking sector will recover the market faster than a low concentrated sector. This is because a highly concentrated banking sector means only a few firms are operating in the market, in other words, these firms are less vulnerable to crisis. In this case, this study aims to research the concentration level of the participation banking sector in Turkey after the 2008 Global Crisis which had a crucial impact on the financial sector of countries. The findings show that the participation banking sector structure in Turkey and its durability to economic crisis.
Key Words: Competition, Participation Banking Sector, Concentration.

1. Introduction

The banking sector is a field in which the firms operating have a significant influence on economies at both the national and the international scale. Firms operating in this field can be considered under the banking market. A markets approach offers economic analysis from various perspectives. Analyzes of the market structure generally aim to determine the competitiveness level of the market. The concentration level of the market will lead to different evaluations.

The market structure is evaluated based on two extreme cases. On the one extreme is the Perfect Competition, whereas the other end is the monopoly, a situation where only one firm operates in the market. Between these two extreme market structures are oligopoly and monopolistic competition structures. Evaluations regarding maximization of social welfare and efficient resource allocations can be done according to the market structures, and economic units can adjust their decision mechanisms accordingly.

The analysis of the competition level of the banking sector significant, especially given the importance of the sector to the country economies. In this regard, it is necessary to evaluate the participation banks, which have taken a significant portion of deposits in Turkey, especially in the recent years. This reveals the need for studies relating the establishment, by state banks, of new subsidiaries that will operate in the field of participation banking. This study, consequently, seeks to analyze the structure of the participation banking sector in Turkey. After this part, the first section will provide information on extant literature. After that, the indexes to be used in analyzing the market structure and the results obtained from these index calculations will be shared. In the last section, the results of the study will be presented.

2. Literature

Studies are extant in literature in which sectoral competition is measured using concentration index. There are a number of studies measuring the concentration ratio of industry or market in Turkey including Kaynak and Arı (2011), on the Turkish automotive sector; Pehlivanoğlu and Tekçe (2013), on Turkish electric energy market; Kostakoğlu (2015), on the Turkish internet service providers market; Kahvecioğlu and Atar (2016), on the Turkish medical equipment sector. Some studies to determine the

concentration ratio in other countries include; Pryor (2002), on the American manufacturing industry; Boutsioli (2007) on the Greek private hospital sector; Wenjie (2011) on the Chinese automobile industry.

The studies analyzing the concentration in the banking sector are also available, given the significance of the sector. There are studies that have been conducted on the Turkish banking sector. Süslü and Baydur (1999 measured the concentration in the Turkish banking sector by using the Herfindhal-Hirschman Index and Concentration Ratio and relying on profit, deposits and credit data. The findings show that the banking sector in Turkey has a monopolistic structure. Uzgören and Tarhan (2012), measured the Herfindhal-Hirschman and the concentration ratio indexes for the concentration in the Turkish banking sector. The data used in this measurement were obtained from the balance sheet size data of banking sector. The findings show that the market structure of the Turkish banking sector exhibit characteristics of monopolistic competition. Besides these, there are studies on the banking sector of other countries: Pavic, Galetic and Kramaric (2012) analyzed the level of concentration in the banking sector in European Union member countries. The findings show that there is a moderate concentration in the banking sector in the European Union countries, and that this concentration level is gradually diminishing. Al Muharrami, Matthews and Khabari (2006) analyzed the market structure of the Arab GCC banking industry for the years 1993-2002 with the help of concentration indices. The findings show that the banking sector in Kuwait, Saudi Arabia and the United Arab Emirates has a moderate level of concentration and that this situation is on a gradually decreasing trend. On the other hand, the concentration is very high in Qatar, Bahrain and Oman, implying that the banking *sector is a low competition market*.

3. Concentration Indices and Findings

The supply of goods in the product markets can be realized by one company or by more than one company. A market or sector where a single firm or only a few firms exist as the suppliers will be regarded as highly concentrated or as having low competition. However, if a large number of firms are active and the market demand is shared proportionally among these firms, it would be right to talk about a situation where there is less concentration, i.e. more competition. Concentration indexes are used when measuring competition in any market or sector. A conclusion on the market structure and the competition situation in the market can be drawn from the results of the evaluation of the concentration in a market. The information obtained from measuring the concentration on the market structure is important for investors and entrepreneurs (Kostakoglu, 2015: 131).

Many indices are used in measuring the concentration that provides information about the market. N-firm concentration index and the Herfindahl-Hirschman concentration index are the most frequently used indexes in literature to measure the concentration. Besides these, there are other indices such as entropy index, Horwath index and GIN index. In this study, the n-firm concentration index and entropy index will be used as they are consistent with the objectives of the study.

The N-company concentration index is used to measure the portion of the total market size that is owned by the largest *n* firms in a given market or sector (Hatırlı, 2017: 354). The number *n* used here refers to the number of firms, and in empirical studies and in the literature this number is usually taken as four, eight or twenty.

$$CR(N) = \sum_{i=1}^{N} Pi$$

Where N is the number of firms while Pi is sector or market share of the i^{th} firm. *N* number of firms; often taken as four or eight firms in the literature. Inference can be made for concentration or competition in the market according to the results of the measurement obtained. N-firm concentration ratio is calculated based on one of the variables such as sales figures, production capacity, employment level, value-added and output of the firms operating in the market (Yıldırım et al., 2016: 40).

Entropy measurement was originally developed and proposed for use in physics. However due to its usefulness in economics, especially, in the determination of concentration, this measure is also used to determine the sector/market share of firms (Hexter and Snow, 1970:240). The entropy index is obtained from the sum of the logarithm of the inverse of the sector share of each firm multiple with the product of the sector share of each firm (Yildirim et al., 2016: 42):

$$Entropi = \sum_{j=1}^{N} Pi \log\left(\frac{1}{Pi}\right)$$

In this study, the concentration level of the sector will be determined by taking into account the dividend income, over the years, of the banks operating in the participation banking sector in Turkey. The data presented in Table 1 is prepared for the years 2010 and 2016 based on the dividend data declared by the participation banks in the 4th quarter of the year. The data were obtained from the statistical reports in the Participation Banks Association of Turkey's website.

Table 1. Participation Banks Dividend Income

	Dividend Incomes					
	Albaraka Türk Participation Bank	Kuveyt Türk Participation Bank.	Türkiye Finans Participation Bank.	Vakıf Participation Bank	Ziraat Participation Bank	Asya Participation Bank
2016-4	2,218,804.00	3,110,435.00	2,981,301.00	140,987.00	390,742.00	
2015-4	1,935,159.00	2,564,838.00	2,780,246.00		86,425.00	
2014-4	1,502,306.00	2,018,781.00	2,169,968.00			1,290,957.00
2013-4	1,153,336.00	1,439,926.00	1,566,233.00			1,816,158.00
2012-4	996,828.00	1,296,118.00	1,410,356.00			1,672,257.00
2011-4	769,727.00	965,771.00	1,049,201.00			1,278,154.00
2010-4	666,507.00	698,871.00	889,675.00			1,206,930.00

Source: Obtained from TKBB 4th quarter data.

The entropy index is a comprehensive index that takes into account all firms operating in the sector and is a more precise index in terms of its calculation format. Calculations made according to the entropy index showed that the index value between 2010 and 2014 did not show any meaningful change, however, there was a remarkable decrease in the index value in 2015 and then it went back to its old level by 2016. The principal reason for the change in 2015 may be attributed to the withdrawal of one of the sector's big banks, Asya Participation Bank from the sector.

Table 2. Entropy Index Values

	EI
2010-4	**1.35674843**
2011-4	**1.37013837**
2012-4	**1.36974933**
2013-4	**1.37334716**
2014-4	**1.36464829**
2015-4	**1.13841155**
2016-4	**1.28484264**

The change in the calculated entropy index values over the years can be shown with the help of graphs. The graphs of the index values obtained for these years are shown below with the aid of two graphs.

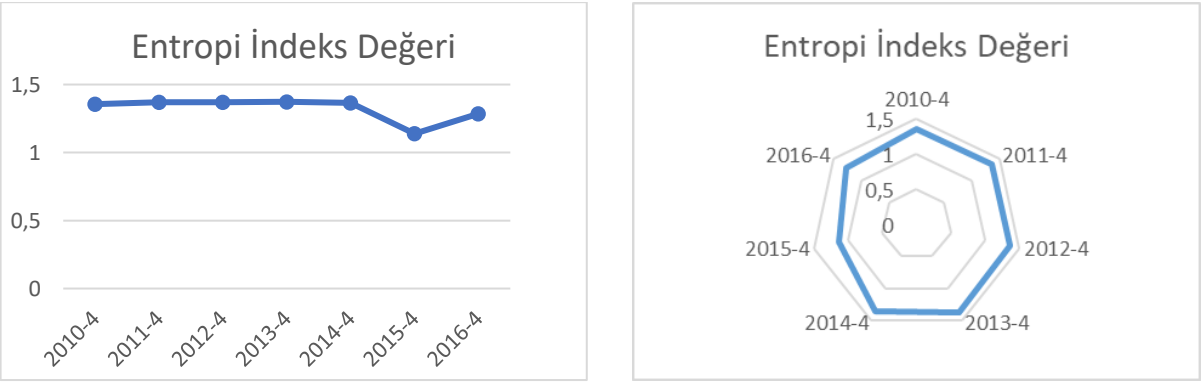

Figure 1. Entropy Index Values

4. Results

This study attempted to analyze the concentration level of the participation banking sector in Turkey with the help of the entropy index. While the findings of this study show that there is no change in the level of concentration in the sector between 2010 and 2014, with the withdrawal of Asya Participation Bank, which had the largest share in the sector, in 2015, the competition between the other banks somewhat increased, but with the entry of other firms into the sector, the concentration level moved back to its previous level.

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LOT-SIZING FOR ALTERNATIVE PRICE INCENTIVES

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Abstract

As a result of today's competitive conditions and technological developments, supply chain management gains importance in many areas. Many of these chains, such as suppliers, producers, sellers and distributors in the supply chain, make critical decisions according to their position, position and competition. These decisions have an impact on both the short-term and long-term total costs and hence the total profits of the companies. One of the decisions that are effective in supply chain management is the issue of when and what amount of effective and correct order will be given. In particular, the time and size of the order which buyer will order, will directly affect many important costs such as inventory cost, order cost and absence cost.

Lot-Sizing problem is considered as determining the time right time and quantity for future demand needs. In this study, lot sizing problem are discussed in the case of alternative price incentives. Determining the required product will be ordered and will be in the amount by which the problem of determining the batch size, price and vendor's proposed incentive system can be updated with the problem are evaluated considering different models. In the problem addressed in this study; demand, order costs and holding costs is uncertain. Planning time is limited, while also supplying the product lead time is taken as zero. The aim of this study may suggest to the vendor's different alternatives for different prices order quantities quickly and effectively is to provide a decision support system. Genetic algorithm is used to solve the problem. To obtain solutions developed with MATLAB 7.0 software was used. MATLAB is used by problems of each random data is generated with the help of Microsoft Office Excel 2011. Wagner-Whitin algorithm, genetic algorithm and improved genetic algorithms has been evaluated in detail with the solutions and performance. The results obtained are presented in this study.
Keywords: Lot Sizing problem; Price incentives; Meta-heuristics, Genetic algorithm; Wagner-Whitin algorithm

ALTERNATİF FİYAT TEŞVİKLERİ İÇİN PARTİ BÜYÜKLÜĞÜNÜN BELİRLENMESİ

Özet

Günümüz rekabet koşulları ve teknolojik gelişmeler neticesinde tedarik zinciri yönetimi birçok alanda önem kazanmaktadır. Tedarik zincirinde bulunan tedarikçiler, üreticiler, satıcılar ve dağıtıcılar gibi birçok bu zincirin halkası firmalar, pozisyon ve rekabet durumuna göre kritik kararlara vermektedirler. Verilen bu kararlar şirketlerin hem kısa vade, hem de uzun vade toplam maliyetleri ve dolayısıyla toplam karları üzerinde etkili olmaktadır. Tedarik zinciri yönetimde etkili olan kararlardan bir tanesi de etkin ve doğru siparişin ne zaman ve ne miktarda verileceği konusudur. Özellikle, alıcı firmanın vereceği siparişin zamanı ve büyüklüğü firmanın stok maliyeti, sipariş maliyeti ve yokluk maliyeti gibi birçok önemli maliyetini direk olarak etkilemektedir.

Parti Büyüklüğü Belirleme Problemi (PBBP), gelecekte oluşacak taleplere yönelik sipariş büyüklüklerinin ve sipariş zamanlarının belirlenmesi olarak düşünülebilir. Bu çalışmada alternatif fiyat teşviklerinin olduğu durumlar için, parti büyüklüğü belirleme problemi ele alınmıştır. Gerekli ürünün ne zaman sipariş verileceğini ve hangi miktarda olacağının belirleyen parti büyüklüğü problemi, fiyat teşvik sistemi ile güncellenmiş ve satıcının önerebileceği farklı modeller dikkate alınarak problem

değerlendirilmiştir. Çalışmada ele alınan problemde; talep, sipariş maliyetleri ve elde bulundurma maliyetleri belirsizdir. Planlama süresi sınırlıdır, ayrıca ürün temin süresi sıfır olarak ele alınmıştır. Bu çalışmanın amacı satıcının farklı sipariş miktarları için önerebileceği farklı fiyatlar için hızlı ve etkin bir karar destek sistemi sağlamaktır. Problemin çözümü için genetik algoritma kullanılmıştır. Çözüm elde etmek için MATLAB 7.0 programı ile geliştirilen program kullanılmıştır. MATLAB programı tarafından kullanılan her probleme ait rassal veriler, Microsoft Office Excel 2011 yardımıyla üretilmiştir. Wagner-Whitin algoritması, genetik algoritma ve geliştirilmiş genetik algoritma ile çözümler ve performansları ayrıntılı olarak değerlendirilmiştir. Elde edilen sonuçlar bu çalışmada sunulmuştur.

Anahtar Kelimeler: Parti büyüklüğü belirleme problemi; Fiyat teşvikleri; Meta-sezgiseller, Genetik algoritma; Wagner-Whitin algoritması

PRIORITIZATION OF CRITICAL SUCCESS FACTORS IN BUSINESS CONTINUITY MANAGEMENT WITH AHP METHOD

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Abstract

Business continuity planning is a process that must be undertaken to ensure that businesses continue to provide services to customers and other business partners at an acceptable level, aimed at protecting assets that they have in the event of a disaster or business interruption. Critical success factors can be defined as essential factors for successful business operations. In this study, firstly, a survey was prepared to set the priorities of critical success factors in business continuity management. Subsequently, in the implementation phase, a hierarchical structure for the AHP model was developed, the aim, the main criteria and sub-criteria that contributed to the achievement of the target, were stated. In this survey; three main criteria and thirteen sub-criteria were examined, the main criteria is defined as planning, precaution and responsibility. There are five sub-criteria related to the main criteria of planning; business continuity plan, drill and improvement plan, adequate budget plan, plan update and documentation, and the sub-criteria based on the main criteria of the measure; the measures taken for managerial and key personnel risks, the measures taken for natural disaster risks, and the measures taken for IT risks. Similarly, the sub-criteria based on the main criteria of responsibility can be defined as reputation, quality, customer satisfaction, delivery, market and customer protection. In addition, six critical success factors have been identified in business continuity management as decision alternatives. Critical success factors are; "Senior management support, business impact analysis and risk analysis, technological infrastructure, training and information, methodology and project management and sustainability". Thus, the AHP decision hierarchy is revealed, after determining the main criteria, sub-criteria and critical success factors which are decision alternatives. For the other steps of the AHP, firstly, paired comparison matrices were created. Paired comparisons were presented with prepared Excel spreadsheets to a specialist risk engineer working in the service sector (insurance sector) in Adana and provided him to make his evaluations easily and apprehensibly. For this purpose, a model proposal is introduced to enable prioritization of critical success factors in business continuity management, using both qualitative and quantitative data, with AHP technique.
Keywords: business continuity planning, business impact analysis, risk analysis, analytical hierarchy process, critical success factor

İŞ SÜREKLİLİĞİ YÖNETİMİNDE KRİTİK BAŞARI FAKTÖRLERİNİN AHP YÖNTEMI İLE ÖNCELİKLENDİRİLMESİ

Özet

İş sürekliliği planlaması, işletmelerin müşterilerine ve diğer iş ortaklarına herhangi bir felaket veya iş kesintisi anında sahip olduğu varlıkları korumasını amaçlayan ve kabul edilebilir bir seviyede hizmet vermeye devam etmesini sağlayabilmek için yürütmesi gereken bir süreçtir. Kritik başarı faktörleri ise, işletme süreçlerinin başarılı olması için olmazsa olmaz faktörler olarak tanımlanabilmektedir. Bu çalışmada, ilk olarak iş sürekliliği yönetimindeki kritik başarı faktörlerinin önceliklerini ortaya koyacak şekilde bir anket hazırlanmıştır. Daha sonra uygulama aşamasında, AHP modeli için hiyerarşik yapı geliştirilmiş ve bu yapıda ulaşılmak istenen hedef yani amaç, amaca

ulaşmada katkı sağlayan ana kriterler ve alt kriterler belirtilmiştir. Bu ankette; planlama, tedbir, sorumluluk olmak üzere üç adet ana kriter ele alınırken, on üç adet alt kriter incelenmiştir. Planlama ana kriterine bağlı alt kriterler; iş sürekliliği planı, tatbikat ve iyileştirme planı, yeterli bütçe planı, plan güncelleme ve dokümantasyon olmak üzere beş tane belirlenirken, tedbir ana kriterine bağlı alt kriterler; yönetici ve kilit personel riskleri için alınan tedbirler, doğal afetler riskleri için alınan tedbirler ve IT riskleri için alınan tedbirler olmak üzere üç adet olarak belirlenmiştir. Benzer şekilde sorumluluk ana kriterine bağlı alt kriterler itibar, kalite, müşteri memnuniyeti, teslimat, pazar ve müşteriyi koruma olmak üzere beş tanedir.Ayrıca, karar alternatifleri olarak iş sürekliliği yönetiminde altı adet kritik başarı faktörü belirlenmiştir. Ele alınan kritik başarı faktörleri; "üst yönetim desteği, iş etki analizi ve risk analizi, teknolojik altyapı, eğitim ve bilgilendirme, metodoloji ve proje yönetimi ve sürdürülebilirlik"tir. Böylece, ana kriterler, alt kriterler ve karar alternatifleri olan kritik başarı faktörleri belirlenmiş AHP karar hiyerarşisi ortaya koyulmuştur. AHP' nin diğer adımları için önce ikili karşılaştırmalar matrisleri oluşturulmuştur. İkili karşılaştırmalar Adana' da hizmet sektöründe (sigortacılık sektöründe) görev alan uzman bir risk mühendisine hazırlanan Excel tablolarıyla sunulmuş ve değerlendirmelerini kolay ve anlaşılır şekilde yapması sağlanmıştır. Bu amaçla, çalışmada AHP tekniği ile, hem nitel hem de nicel verileri kullanarak, iş sürekliliği yönetiminde kritik başarı faktörlerinin önceliklendirilmesine imkan sağlayacak bir model önerisi getirilmiştir.
Anahtar Kelimeler: iş sürekliliği planı, iş etki analizi, risk analizi, analitik hiyerarşi prosesi, kritik başarı faktörü

1. Giriş

İş sürekliliği, işletmelerin kritik iş süreçlerinin sürekliliğine olanak vermek, sağlanamadığı durumlarda kabul edilebilir kesinti süreleri içerisinde yeniden çalışır hale getirmek için gerçekleştirilen çalışmalar olarak tanımlanabilmektedir. Kritik iş süreçlerinin daimi olarak çalışır vaziyette bulunması tercih edilen durumdur.

İş Sürekliliği Enstitüsü İş Sürekliliği Yönetimi' ni aşağıdaki gibi tanımlamaktadır (Estall H., 2012):

"İş sürekliliği yönetimi, operasyonların devam etmesini sağlamak için kullanılan ve ürün ve hizmetlerin önceden tanımlanmış seviyelerde dağıtan bütüncül bir yönetim sürecidir, ayrıca, markalar ile değer-yaratıcı faaliyetleri ve yıkıcı olaylar meydana geldiğinde kilit paydaşların itibarını ve menfaatlerini korur …"

Araştırmacıların ve uygulayıcıların çoğunluğu şimdi İş Sürekliliği Yönetimi' ni kritik olarak görmekte ve onu organizasyonun sürdürülebilirliği ile pozitif olarak ilişkilendirmektedir (Järveläinen J., 2013). Siber dünyada ticari işlem veya işlem çoğunlukla IT'yi kapsasa da, iş sürekliliğini yalnızca teknolojiyi tek bir çözüm olarak görmek yetersizdir. İşletmenin kullanılabilirliğini ve sürdürülebilirliğini yönetmek, teknoloji, süreç ve insanlar gibi kuruluşa ve kaynaklara yönelik entegre ve dengeli bir yaklaşımı gerektirir (Abdullah, N. A. S., Noor, N. L. M., ve Ibrahim, E. N. M., 2015).

Günümüzde yapılan araştırmalar felaket, beklenmedik bir durum veya kesinti karşısında maddi ve manevi kayıplar vermemek, kritik süreçlerin devamlılığını sağlayabilmek amacıyla iş sürekliliği yönetimi sisteminin oldukça önemli olduğunu bir kez daha ortaya koymuştur. Kısa sürede ve etkin olarak müşteri ihtiyaçlarını karşılamak için iş sürekliliği yönetim sisteminin de kritik başarı faktörlerinin bilinmesi ve ortaya konulması gerekmektedir.

Bu amaçla; literatür incelemeleri sonucunda, geçmişte yapılan çalışmaların ağırlıklı olarak iş sürekliliği yönetiminin aşamalarını ele aldığı ve özellikle bankalarda uygulama çalışmaları yapıldığı görülmüştür. Ayrıca, önceki çalışmalarda kritik başarı veya başarısızlık faktörlerinin önceliklendirilmesi anket çalışmaları ile yürütülmüştür. Bu çalışmada ise, iş sürekliliği yönetim sistemi ana süreçleri incelenerek iş sürekliliği yönetim sistemindeki kritik başarı faktörleri ele alınmış ve bu faktörlerin AHP yöntemi ile önceliklendirilmesi araştırılmıştır.

2. Önceki Çalışmalar

Sharvari Kulkarni, Gezinus J. Hidding ve Serhat Çiçekoğlu (2015) bu çalışmada, kriz sonrası İş Sürekliliği Planlaması (BCP) için genel bir çerçeve önermektedir. BCP çerçevesi, BC planları için birden fazla planlama yönü, çok aşamalı ve çok sayıda ayrıntılı öğeden oluşur. Çerçeve temel alınarak, örgütler kriz sonrası BC planlarını tasarlayabilir, bunları uyarlayabilir ve / veya değerlendirebilir.

Geleneksel risk yönetimi literatürü, bir krizin bir kuruluşun İş Sürekliliği (BC) üzerindeki etkisini önleme ve azaltmaya yöneliktir. Bu, genellikle, beklenen risklerin organizasyon üzerindeki etkisini belirleyerek, analiz ederek ve değerlendirerek yapılır. Buna karşın, krizler oluştuğunda örgütlerin ne yapmaları gerektiğine ilişkin literatürde nispeten eksiklikler bulunduğunu öne süren yazarlar gelecekteki çalışmalarında, BCP çerçevesinin endüstriye özgü uzantılarını ele alacaklarını belirtmişlerdir.
Nurul Aisyah Sim Abdullah, Nor Laila Md Noor ve Emma Nuraihan Mior İbrahim (2015), Malezya bilgi temelli bir ekonomi inşa etmeye ve bilgi çağında IT'ye daha fazla bağımlı hale gelmeye odaklandığından, kriz veya felaket durumunda iş devamlılığını sağlamak için duyulan ihtiyacın her zamankinden daha önemli hale geldiğini savunmaktadır. Tüm kamu kurumları, beklenmedik kesintilerden sonra operasyonların hızla devam etmesini sağlamak için iş sürekliliği planını (BCP) hazırlamaya çağrılmaktadır. Bununla birlikte, son çalışmalar, BCM'nin yerine getirilmesine rağmen hizmet kesintilerinin sıklığının oldukça kaygı verici olduğunu göstermiştir. Yazarlar, bu nedenlerden dolayı çalışmalarında, Malezya'nın kamu hizmetinde BCM uygulamasının başarısızlığa uğramasında BCM'nin şimdiki uygulamasını ve başarısızlığa katkıda bulunan faktörleri, yani organizasyonları, insanları, süreçleri ve teknolojiyi araştırmaktadır. Uygulama, 195 IT kişisinin katıldığı anketler kullanılarak gerçekleştirilmiştir. Seçilen acenteler Frontline ajanslarıdır ve hali hazırda BCM'yi uygulamıştır. Bulgular, örgütlenme, insanlar, süreç ve teknolojinin Malezya Kamu Sektöründe BCM başarısızlığı ile önemli derecede ilişkili olduğunu göstermiştir. Ampirik sonuçlar, insanlar, kültür, teknoloji ve organizasyon politikasının BCM başarısızlığına katkıda bulunan sürecin kilit faktörlerinin olduğunu ortaya koymaktadır. Bununla birlikte, mevcut BCM yaklaşımı teknoloji odaklı olmaya yöneliktir ve yalnızca IT departmanını içermektedir. BCM uygulaması organizasyonun tüm düzeylerini içermeli ve ilgili tüm kritik iş süreçlerini kapsamalıdır. Bu çalışmanın sonuçları iki anlam ifade etmektedir: Birincisi, BCM başarısızlığına katkıda bulunan faktörün keşfedilmesi ve ikincisi, bu çalışmanın sonuçları BCM başarısızlığına katkıda bulunan faktöre öncelik vermiştir.

Leong Lai Hoong ve Govindan Marthandan (2013) çalışmalarında, başarılı bir BCM sürecinin olanaklarını tanımlamışlardır. Bu çalışmanın ilk aşaması, BCM süreci üzerinde etkili olan faktörleri anlamayı ve başarılı bir BCM süreci için kavramsal bir model geliştirmeyi içermektedir. Veriler, e-postayla gönderilen anketlerle toplanmıştır. Toplanan veriler kavramsal modeli test etmek için kullanılmış ve analiz yapılmıştır. Bu çalışmanın bulguları faydalı bilgiler sağlamakta, BCM sürecini uygulayan ve sürdürmekte olan banka yöneticilerine etkili bir şekilde yardımcı olabilmektedir. Bu çalışmanın temel bulguları, teknoloji bileşenlerinin (BT kullanılabilirliği ve güvenilirliği, karmaşıklığı ve teknoloji yetkinliği), algılanan BC faydaları, üst yönetim desteği, BC'yi benimsemeye yönelik dış baskı ve iş ortamının Malezya'daki finansal endüstrideki BCM uygulaması üzerinde olumlu etkileri olduğu yönündedir.

Leong Lai Hoong ve Govindan Marthandan (2011) çalışmalarında, Felaket İyileştirme Planlaması (DRP) ve iş sürekliliği yönetimi (BCM) konusundaki araştırmaları gözden geçirmektedir. Felaket İyileştirme Planlaması (DRP), BT departmanındaki riskin azaltılmasını dikkate alan bir BT süreci olmakla birlikte kesintiler durumunda BT sistemlerini kurtarma prosedürünü yerine getirmektedir. DRP ve BCM süreçlerinde var olan faktörleri ve bu faktörlerin güncellenmiş bir çerçeveye nasıl dahil edilebileceğini açıklamakta, ayrıca etkin ve başarılı bir DRP ve BCM uygulaması için açıklayıcı bir çerçeve sunmaktadır.

Moh Heng Goh (2009) çalışmasında, SS540: 2008, standart uygulama tarihçesi, BCM ve BC konseptine giriş ve SS540: 2008 standardı çerçevesinde özetle başlamaktadır. Singapur'da faaliyet gösteren uluslararası ve yerel işletmeler tarafından benimsenen Singapur İş Sürekliliği Yönetimi Standardı (BCM) 'dir. SS540: 2008'deki BCM çerçevesi, 6 büyük BCM alanı ve dört ana BCM bileşeni içerdiğinden oldukça titizdir. BCM çerçeve matrisi, SS540: 2008'i kapsamlı bir BCM standardı haline getiren bir kapsama alanı sağlamaktadır. Her bir BCM alanının ana bileşenine göndermede bulunulmasına genel bakış ayrıntılı olarak sunulmuştur.

Ada Wong, Patrick Y.K. Chau, Harry Scarbrough, Robert Davison (2005) çalışmalarında, öncelikle uygulama aşamalarındaki ERP uygulama sorunları ve ERP başarısızlık nedenlerine ilişkin güncel literatürü incelemişlerdir. Bu ERP sistemlerinin "Neden" ve "nasıl" başarıyla uygulanamayacağını anlamak için birden fazla vaka incelemesi araştırma metodolojisi benimsenmiştir. Bu vaka analizlerinden farklı paydaşlar (üst düzey yönetim, proje yöneticisi, proje ekibi üyeleri ve ERP danışmanları dahil) görüşülmüş ve üçgenleştirme için ERP uygulama belgeleri gözden geçirilmiştir. Bir ERP yaşam döngüsü çerçevesi, ERP uygulama sürecinin ve ilgili ERP uygulamasının her aşamasındaki

problemlerin incelenmesi için uygulanmıştır. On dört kritik başarısızlık faktörü belirlenmiş ve analiz edilmiştir; üç ortak kritik başarısızlık faktörü (zayıf danışman etkinliği, proje yönetimi etkinliği ve iş sürecinin yeniden yapılandırılması kalitesi) incelenmiş ve tartışılmıştır.

2.1.İş Sürekliliği Yönetimi

İş sürekliliği yönetim sistemi, işlerin aksamasına sebep olabilecek bir olayın ardından bir kuruluşun ürün veya hizmet sağlama kabiliyetinin önceden belirlenmiş kabul edilebilir seviyelerde devam etmesi, bir faaliyetin kesintiye uğraması sonucunda kuruluş faaliyetinin devam edebilmesinin temin edilebilmesi için prosesler, prosedürler, kararlar ve faaliyetler oluşturması, başka bir deyişle, kuruluşların krizlerden ve felaketlerden kaçınmasına yardımcı olmak için proaktif ve reaktif planlar yaparak bu gibi durumlar gerçekleştiğinde hızlı bir şekilde olağan duruma geri dönülebilmesini sağlamaya yardımcı olmaktadır. (https://www.tse.org.tr/tr/icerikdetay/2044/1064/ts-iso-22301-is-surekliligi-yonetim-sistemi.aspx)

Felaket anında, iş kesintisi ve beklenmedik durumlarda ticari etkinliklerin ve kritik iş faaliyetlerinin sürdürülebilmesine destek olabilmek, kurumun itibarının zedelenmesini önlemek, işlerin devamlılığını sağlamak için İngiliz Standartlar Enstitüsü (British Standards Institution) tarafından BS25999 standardı yayınlanmıştır (Kamu-BIB/2012-ÇG2, 2012).

BS 25999 yaşam döngüsü, bu standartta ele alınan ve vurgulanması gereken önemli konulardan birisidir (Bkz.Şekil 1). Bu yaşam döngüsü 6 bileşenden oluşmakla birlikte, farklı ölçekte ve türde kuruma uygulanabileceği gibi kurumun kapsamı ve yapısal özelliklerine göre kurumdan kuruma değişiklikler gösterebilmektedir. Program yönetimi, yaşam döngüsünün merkezinde yer alarak iş sürekliliği politikası ile belirlenmiş gayelerin gerçekleştirilebilmesi için yapılması gereken çalışmaları tanımlamaktadır.

Şekil 1. BS 25999 Yaşam Döngüsü (Kamu-BIB/2012-ÇG2, 2012).

PUKO döngüsü organizasyonun BCMS' inin kurulması, uygulanması, işletilmesi, izlenmesi, denenmesi, sürekliliğinin sağlanması ve etkinliğinin iyileştirilmesi için BS 25999 İş Sürekliliği Yönetim Sistemi Standardı tarafından kullanır (Bkz. Tablo 1).

Tablo 1. PUKO Döngüsü (Kamu-BIB/2012-ÇG2, 2012).

Planla	Organizasyonun tüm politika ve hedefleri ile uyumlu sonuçlar alabilmek için risk yönetimi ve iş sürekliliğini iyileştirici politika, amaç, hedef, kontrol, proses ve prosedürler oluştur.
Yap	İş süreklilik politika, kontrol, proses ve prosedürlerini uygula.
Kontrol et	İş süreklilik hedef ve politika performansını izle, gözden geçirme için yönetime raporla, iyileştirme ya da değişiklik eylemlerini belirle.
Uygula	Gözden geçirme sonuçlarını temel alan düzeltici ve önleyici faaliyetler ile BCMS sürekliliğini ve iyileşmesini sağla.

Olağanüstü bir durum ve felaketle karşılaşan kurumlar ciddi mali kayıplar ile birlikte, itibar, müşteri pazar kaybı gibi sorunlar ile karşı karşıya kalabilmektedirler. O nedenle beklenmeyen bir duruma hazırlıklı olabilmek ve organize şekilde bir plan, program dahilinde kurumun bütününe yayılmış bir kültürle hareket etmek, işletmelerin bu gibi durumlarda esneklik ve hayata geri dönüşü için oldukça önem taşımaktadır.

2.2.İş Sürekliliği Yönetimindeki Kritik Başarı Faktörleri

Kritik başarı faktörleri, işletme süreçlerinin başarılı olması için olmazsa olmaz faktörler olarak tanımlanabilmektedir.
Çalışmada, 6 adet kritik başarı faktörü ele alınmıştır. Bunlar şöyle sıralanmaktadır:

1) Üst Yönetim Desteği,
2) İş Etki&Risk Analizi,
3) Teknolojik Altyapı,
4) Eğitim ve Bilgilendirme,
5) Metodoloji ve Proje Yönetimi,
6) Sürdürülebilirlik.

Sürdürülebilirlik kritik başarı faktörüne ise, daha önceki çalışmalarda yer verilmemiştir; bu çalışmada değerlendirilmesi tarafımızca uygun görülmüştür. Proje yönetimi iş sürekliliğinin altı ana metodolojisine henüz dahil edilmemiş bir fazdır. Bunun nedeni ise, iş sürekliliğinin organizayon tarafından sertifikalandırılması için tamamlanması nedeniyle bu aşamada SS540:2008 standardından düşürülmüş olmasıdır (Heng, G. M., 2009). Proje yönetiminin de kritik başarı faktörü olarak değerlendirilmesi tarafımızca uygun görülmüştür.
Çalışmanın bu bölümünde belirlenmiş kritik başarı faktörleri ile literatürde bahsi geçmiş ortak kritik başarı veya başarısızlık faktörleri ortaya konmuştur (Bkz. Tablo 2).

Tablo 2. İş Sürekliliği Yönetimindeki Kritik Başarı Faktörleri

YAZARLAR	KRİTİK BAŞARI FAKTÖRLERİ						YIL
	Üst Yönetim Desteği	İş Etki&Risk Analizi	Teknolojik Altyapı	Eğitim ve Bilgilendirme	Metodoloji ve Proje Yönetimi	*Sürdürülebilirlik	
Abdullah, Noor & Ibrahim	X		X	X	X		2015
Hoong & Marthandan	X		X	X	X		2011
Dinçkan	X	X	X	X			2010
Goh	X		X	X	X		2009
Wong, Chau, Scarbrough & Davison	X		X		X		2005
*Yazarlar tarafından						X	

3. Materyal ve Metod

3.1.Materyal

Çalışmada kullanılan materyaler, Türkiye' de iş sürekliliği yönetim sistemi uygulayan özel ve kamu firmalarından elde edilen verilerdir. Bu firmalardan birinde hazırlanan anket uzman görüşüyle incelenmiş ve değerlendirilmiştir. Anketten elde edilen veriler kullanılarak AHP yöntemi ile iş sürekliliği yönetim sistemindeki kritik başarı faktörleri önceliklendirilmiştir. Bu amaçla; 3 adet ana kriter, 13 adet alt kriter ve 6 adet alternatif belirtilmiştir.

Verilerin düzenlenmesinde ve toplanmasında Microsoft Office Excel 2003 sürümünden yararlanılmıştır.

3.2. Metodoloji

Çalışmada kullanılan metodoloji aşağıdaki adımlardan oluşmaktadır;

1. Çalışmanın amaçları doğrultusunda iş sürekliliği planlaması, iş sürekliliği yönetimi, AHP uygulamaları konularında geniş bir literatür taraması yapılması,
2. Literatürden elde edilen sonuca göre çalışmanın amacını da dikkate alarak, hazırlanacak olan sistemin kavramsal bir veri akış modelinin oluşturulması,
3. BCM, AHP ve benzer uygulamaların incelenmesi,
4. BCM kritik başarı faktörlerinin belirlenmesi,
5. Yeterli etkinlikte soruların kapsayan anket hazırlanması,
6. BCM uygulanan bir işletme seçilerek hazırlanan anketin uzmana uygulanması,
7. Anket sonuçlarının AHP metodu ile analiz edilerek BCM'deki kritik başarı faktörlerinin önceliklendirilmesi,
8. AHP yaklaşımının iş sürekliliği yönetimindeki kritik başarı faktörleri modeline uygulanması sonucunda elde edilen bulguların irdelenmesi, bulgulardan yola çıkarak, sonuçların ve geleceğe yönelik önerilerin ortaya konulması çalışmanın metodolojisini göstermektedir.

3.3. Metod

3.3.1. Analitik Hiyerarşi Prosesi

Analitik Hiyerarşi Prosesi (AHP) 1977 yılında Thomas L. Saaty tarafından geliştirilen bir Çok Kriterli Karar Verme (ÇKKV) aracıdır. Sürece somut nicel kiterlerin yanı sıra soyut nitel kriterlerin de dahil edilmesi mümkündür. (Badri M.A., 2001)

AHP kullanılan karar problemlerinin çözümü dört adımdan oluşmaktadır. Bunlar (Zahedi F., 1986);

- **Adım 1:** Birbirleri ile ilişkili kriterlerin hiyerarşisi içerisinde karar probleminin parçalara ayrılarak karar hiyerarşisinin kurulması,
- **Adım 2:** Kriterlerin ikili karşılaştırmalarına göre giriş verilerinin toplanması,
- **Adım 3:** Kriterlerin göreceli ağırlıklarını tahmin etmek için "özdeğer matrisi" yönteminin kullanılması,
- **Adım 4:** Karar alternatiflerinin değerlendirmelerine ulaşmak için kriterlerin nispi ağırlıkları kümelenmektedir.

Karşılaştırma yapılırken kriterlerin birbirinden ne kadar önemli olduğunu gösteren bir ölçeğe ihtiyaç duyulmaktadır (Saaty T.L., 2008). Tablo 3' te AHP için önem düzeyleri sıralanmıştır;

Tablo 3. AHP Önem Düzeyleri (Saaty ve Sodenkamp, 2010)

Önem Yoğunluğu	Tanım	Açıklama
1	Eşit Önem	İki faaliyet amaca eşit düzeyde katkıda bulunur.
3	Birinin diğerine göre çok az önemli olması	Tecrübe ve yargı bir faaliyeti diğerine çok az tercih ettirir.

5	Kuvvetli derecede önemli	Tecrübe ve yargı bir faaliyeti diğerine çok kuvvetli bir derecede tercih ettirir.
7	Çok kuvvetli düzeyde önemli	Bir faaliyet güçlü bir şekilde tercih edilir ve baskınlığı uygulamada rahatlıkla görülür.
9	Aşırı derecede önemli	Bir faaliyetin diğerine tercih edilmesine ilişkin kanıtlar çok büyük güvenilirliğe sahiptir.
2,4,6,8	Orta Değerler	Uzlaşma gerektiğinde kullanmak üzere yukarıda listelenen yargılar arasına düşen değerler.

Son olarak yargıların tutarlı olup olmadığını ölçmek amacıyla tutarlılık oranı hesaplanmaktadır. Eğer bu oran 0,1'den büyük ise yargıların tutarsız olduğu sonucuna varılmaktadır (Coyle G., 2004).

4. Araştırma Bulguları ve Tartışma

4.1. Karar Probleminin Tanımı

Karar problemi, iş sürekliliği yönetim sistemindeki kritik başarı faktörlerinin öncelik düzeylerinin ortaya konulmasını sağlayan bir sistem tasarlamaktır.

4.2. Hiyerarşik Yapının Oluşturulması

Hiyerarşi yapıyı oluşturacak amaç, iş sürekliliği yönetiminde kritik başarı faktörü seçimidir. Çalışmada, "planlama, tedbir ve sorumluluk" olmak üzere 3 adet ana kriter ve alt kriterleri belirtilmiştir. Değerlendirme iş sürekliliği yönetimi konusunda uzman risk mühendisi tarafından yapılmıştır.
Ana kriterler, problemin amacına göre iş sürekliliği yönetiminde kritik başarı faktörü önceliklendirmeyi sağlayacak şekilde oluşturulmuştur. Ele alınacak ana kriterler;

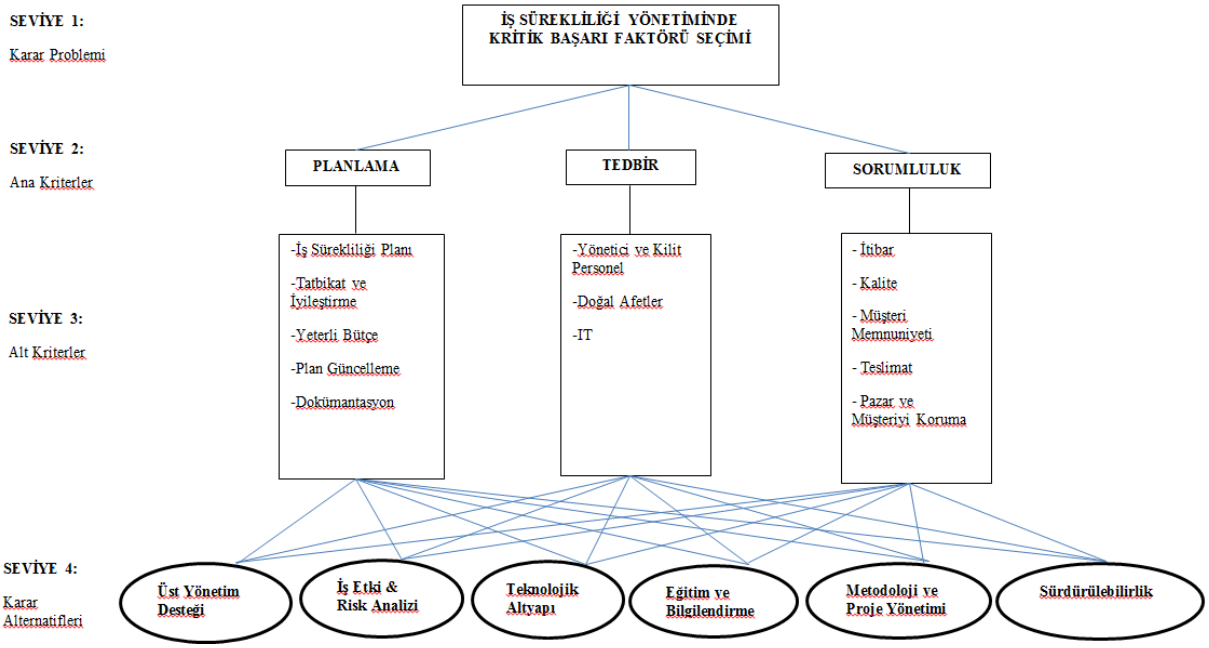
- Planlama
- Tedbir
- Sorumluluk 'tur.

Tanımlanan tüm ana kriter ve alt kriterler Tablo 4' te görülmektedir. Problemin oluşturulan hiyerarşik modeli ise Şekil 2' de yer almaktadır. Burada ele alınan problemin amacı, belirlenen ana kriterler ve alt kriterler için AHP modeli görülmektedir.

Tablo 4. Tanımlanan Ana Kriter ve Alt Kriterler

İş Sürekliliği Yönetiminde Kritik Başarı Faktörü Seçimi	Planlama	İş Sürekliliği Planı
		Tatbikat ve İyileştirme Planı
		Yeterli Bütçe Planı
		Plan Güncelleme
		Dokümantasyon
	Tedbir	Yönetici ve Kilit Personel Riskleri İçin Alınan Tedbirler
		Doğal Afet Riskleri İçin Alınan Tedbirler
		IT Riskleri İçin Alınan Tedbirler
	Sorumluluk	İtibar
		Kalite
		Müşteri Memnuniyeti
		Teslimat
		Pazar ve Müşteriyi Koruma

Problemin karar hiyerarşisi oluşturulurken planlama, tedbir ve sorumluluk olmak üzere 3 ana kriter ve bu kriterlerle ilişkili on üç alt kriter kullanılmıştır (Bkz.Şekil 2).



Şekil 2. AHP Karar Hiyerarşisi

4.3. Ana Kriteler Arası İkili Karşılaştırma Matrislerinin Oluşturulması

Çalışmanın bu bölümünde ikili karşılaştırma matrislerine yer verilecektir. Öncelikle ana kriterler arasında ikili karşılaştırma matrisleri oluşturularak ana kriterler arasındaki önem düzeyleri belirlenecektir (Bkz.Tablo 5).

Tablo 5. İş Sürekliliği Yönetiminde Kritik Başarı Faktörü Önceliklendirme Amacı İçin Ana Kriterler Arası Karşılaştırma Matrisi ve Önem Düzeyleri

KRİTİK BAŞARI FAKTÖRÜ	PLANLAMA	TEDBİR	SORUMLULUK	**ÖNEM DÜZEYİ**
PLANLAMA	1	3	3	**0,588888889**
TEDBİR	1/3	1	2	0,251851852
SORUMLULUK	1/3	1/2	1	0,159259259
TUTARLILIK ORANI:	**0,040687931**		**TOPLAM**	1

4.4. Alt Kriterler Arası İkili Karşılaştırma Matrislerinin Oluşturulması

Ana kriterlerden elde edilen önem düzeyleri alt kriterler arası karşılaştırma matrislerinin ağırlıkları olarak ele alınacaktır (Bkz.Tablo 6,7,8).

Tablo 6. Planlama Ana Kriterine Göre Alt Kriterlerin Karşılaştırma Matrisi ve Önem Düzeyleri

PLANLAMA	İş Sürekliliği Planı	Tatbikat ve İyileştirme	Yeterli Bütçe	Plan Güncelleme	Dokümantasyon	**ÖNEM DÜZEYİ**
İş Sürekliliği Planı	1	1/2	1/5	1/2	1/6	0,057015439
Tatbikat ve İyileştirme	2	1	1/6	1/5	1/6	0,064993989
Yeterli Bütçe	5	6	1	3	2	**0,40044702**
Plan Güncelleme	2	5	1/3	1	1/5	0,143666345
Dokümantasyon	6	6	1/2	4	1	0,333877207
TUTARLILIK ORANI:		**0,074965**			**TOPLAM**	1

Tablo 7. Tedbir Ana Kriterine Göre Alt Kriterlerin Karşılaştırma Matrisi ve Önem Düzeyleri

TEDBİR	Yönetici ve Kilit Personel	Doğal Afetler	IT	**ÖNEM DÜZEYİ**
Yönetici ve Kilit Personel	1	2	1/3	0,251851852
Doğal Afetler	1/2	1	1/3	0,159259259
IT	3	3	1	**0,588888889**
TUTARLLK ORANI: 0,040687931			**TOPLAM**	1

Tablo 8. Sorumluluk Ana Kriterine Göre Alt Kriterlerin Karşılaştırma Matrisi ve Önem Düzeyleri

SORUMLULUK	İtibar	Kalite	Müşteri Memnuniyeti	Teslimat	Pazar ve Müşteriyi Koruma	**ÖNEM DÜZEYİ**
İtibar	1	7	1	1	4	**0,337145567**
Kalite	1/7	1	1/4	1	1	0,092256316
Müşteri Memnuniyeti	1	4	1	2	3	0,307621757
Teslimat	1	1	1/2	1	1	0,158998848
Pazar ve Müşteriyi Koruma	1/4	1	1/3	1	1	0,103977511
TUTARLILIK ORANI: 0,071319		**TOPLAM**			1	

Alt kriterler arası karşılaştırma matrisleri sonucunda bulunan değerler ana kriterlerin önem düzeyleri çarpılarak ağırlık değerler elde edilmiştir (Bkz.Tablo 9).

Tablo 9. Alt Kriterlerin Önem Değerleri

ANA KRİTERLER	**ALT KRİTERLER**	**DEĞERLER**	**ÖNEM DÜZEYLERİ**
PLANLAMA (0,588888889)	**İş Sürekliliği Planı**	0,057015439	0,033575759
	Tatbikat ve İyileştirme	0,064993989	0,038274238
	Yeterli Bütçe	0,400447020	**0,235818801**
	Plan Güncelleme	0,143666345	0,084603514
	Dokümantasyon	0,333877207	0,196616577
TEDBİR (0,251851852)	**Yönetici ve Kilit Personel**	0,251851852	0,063429355
	Doğal Afetler	0,159259259	0,040109739
	IT	0,588888889	**0,148312757**
SORUMLULUK (0,159259259)	**İtibar**	0,33714557	**0,053693553**
	Kalite	0,09225632	0,014692673
	Müşteri Memnuniyeti	0,30762176	0,048991613
	Teslimat	0,15899885	0,025322039
	Pazar ve Müşteriyi Koruma	0,10397751	0,016559381
		TOPLAM	1

3.5.Karar Alternatifleri İçin İkili Karşılaştırma Matrislerinin Oluşturulması

Alt kriterlerin ikili karşılaştırılmasından sonra her bir alternatif tüm alt kriterler açısından değerlendirilecektir. Karşılaştırmalar ele alınırken uzman görüşü dikkate alınmıştır (Bkz.Tablo 10,11).

Tablo 10. İş Sürekliliği Planı Alt Kriterine Göre İş Sürekliliği Yönetiminde Kritik Başarı Faktörü Seçim Alternatiflerinin Karşılaştırma Matrisi ve Önem Düzeyleri

İŞ SÜREKLİLİĞİ PLANI	Üst Yönetim Desteği	İş Etki Analizi	Teknolojik Altyapı	Eğitim ve Bilgilendirme	Metodoloji ve Proje Yönetimi	Sürdürülebilirlik	ÖNEM DÜZEYİ
Üst Yönetim Desteği	1	7	1	1	4	1	0,252301679
İş Etki Analizi	1/7	1	1/4	1	1	1/4	0,064565935
Teknolojik Altyapı	1	4	1	2	3	1	0,229285806
Eğitim ve Bilgilendirme	1	1	1/2	1	1	1/4	0,107290342
Metodoloji ve Proje Yönetimi	1/4	1	1/3	1	1	1/4	0,072032336
Sürdürülebilirlik	1	4	1	4	4	1	**0,274523902**
TUTARLILIK ORANI:			**0,049424**	**TOPLAM**			1

Tablo 11. Tatbikat ve İyileştirme Alt Kriterine Göre İş Sürekliliği Yönetiminde Kritik Başarı Faktörü Seçim Alternatiflerinin Karşılaştırma Matrisi ve Önem Düzeyleri

TATBİKAT VE İYİLEŞTİRME	Üst Yönetim Desteği	İş Etki Analizi	Teknolojik Altyapı	Eğitim ve Bilgilendirme	Metodoloji ve Proje Yönetimi	Sürdürülebilirlik	ÖNEM DÜZEYİ
Üst Yönetim Desteği	1	1/4	1/4	1/4	7	1/5	0,076598148
İş Etki Analizi	4	1	1	1	8	2	**0,245977047**
Teknolojik Altyapı	4	1	1	1	7	2	0,241591082
Eğitim ve Bilgilendirme	4	1	1	1	7	2	0,241591082
Metodoloji ve Proje Yönetimi	1/7	1/8	1/7	1/7	1	1/8	0,026151202
Sürdürülebilirlik	5	1/2	1/2	1/2	8	1	0,168091438
TUTARLILIK ORANI:			**0,058469**			**TOPLAM**	1

Elde edilen tüm tutarlılık oranları 0,1' den küçük olduğu için yargıların tutarlı olduğu sonucuna varılmaktadır.

Tablo 10 ve Tablo 11' da örnek olması açısından karar alternatiflerinin iş sürekliliği planı ve tatbikat ve iyileştirme alt kriterlerine göre matrisleri gösterilmiştir. Benzer şekilde tüm alt kriterler açısından yapılan matrisler sonucunda Tablo 12' ye ulaşılmıştır. Tablo 12' de ana kriterlerin önem düzeyleri ile ağırlıklandırılmış olan alt kriterlerin önem düzeyleri her bir alternatifin önem düzeyleri ile çarpılmış ve son önem düzeyleri elde edilmiştir. Alternatiflerin önem düzeyleri ise, kendi arasında toplanarak karar vermemize yardımcı olacak olan ağırlık değerlerine ulaşılmıştır (Arsu, T. ve Özçifçi V., 2013) (Bkz.Tablo 12).

Tablo 12. İş Sürekliliği Yönetiminde Öncelikli Kritik Başarı Faktörü Seçim Probleminde Alt Kriter ve Alternatiflerin Öncelik Değerleri

ALT KRİTER ÖNCELİK DEĞERİ	ALT KRİTER	ÜST YÖNETİM DESTEĞİ	İŞ ETKİ ANALİZİ& RİSK ANALİZİ	TEKNOLOJİK ALTYAPI	EĞİTİM VE BİLGİLENDİRME	METODOLOJİ VE PROJE YÖNETİMİ	SÜRDÜRÜLEBİLİRLİK	TUTARLILIK ORANI	ÜST YÖNETİM DESTEĞİ	İŞ ETKİ ANALİZİ& RİSK ANALİZİ	TEKNOLOJİK ALTYAPI	EĞİTİM VE BİLGİLENDİRME	METODOLOJİ VE PROJE YÖNETİMİ	SÜRDÜRÜLEBİLİRLİK
0,0336	**İş Sürekliliği Planı**	0,2523	0,0646	0,2293	0,1073	0,0720	0,2745	0,0494	0,0085	0,0022	0,0077	0,0036	0,0024	0,0092
0,0383	**Tatbikat ve İyileştirme**	0,0766	0,2460	0,2416	0,2416	0,0262	0,1681	0,0585	0,0029	0,0094	0,0092	0,0092	0,0010	0,0064
0,2358	**Yeterli Bütçe**	0,1508	0,0581	0,2380	0,0389	0,4216	0,0926	0,0225	0,0356	0,0137	0,0561	0,0092	0,0994	0,0218
0,0846	**Plan Güncelleme**	0,0322	0,2114	0,1686	0,0931	0,2225	0,2722	0,0301	0,0027	0,0179	0,0143	0,0079	0,0188	0,0230
0,1966	**Dokümantasyon**	0,0276	0,0669	0,3082	0,2265	0,1272	0,2408	0,0503	0,0054	0,0131	0,0606	0,0445	0,0250	0,0473
0,0634	**Yönetici ve Kilit Personel T.**	0,1690	0,1064	0,0590	0,0921	0,2403	0,3331	0,0902	0,0107	0,0067	0,0037	0,0058	0,0152	0,0211
0,0401	**Doğal Afet T.**	0,5115	0,1098	0,0895	0,0508	0,1047	0,1337	0,0523	0,0205	0,0044	0,0036	0,0020	0,0042	0,0054
0,1483	**IT Riskler T.**	0,3368	0,2166	0,0474	0,1495	0,1222	0,1275	0,0886	0,0500	0,0321	0,0070	0,0222	0,0181	0,0189
0,0537	**İtibar**	0,4183	0,3149	0,1532	0,0469	0,0377	0,0289	0,0633	0,0225	0,0169	0,0082	0,0025	0,0020	0,0016
0,0147	**Kalite**	0,0604	0,0500	0,1783	0,1741	0,0433	0,4939	0,0632	0,0009	0,0007	0,0026	0,0026	0,0006	0,0073
0,0490	**Müşteri Memnuniyeti**	0,4470	0,1433	0,2285	0,0337	0,0609	0,0866	0,0510	0,0219	0,0070	0,0112	0,0017	0,0030	0,0042
0,0253	**Teslimat**	0,0202	0,1542	0,2405	0,0810	0,1890	0,3151	0,0876	0,0005	0,0039	0,0061	0,0021	0,0048	0,0080
0,0166	**Pazar ve Müşteriyi Koruma**	0,2203	0,0386	0,2203	0,3534	0,1377	0,0296	0,0209	0,0036	0,0006	0,0036	0,0059	0,0023	0,0005
TOPLAM									0,186	0,129	0,194	0,119	**0,197**	0,175

Uzman görüşü ile elde edilmiş sonuçlar önceki çalışmalar ile (Abdullah, N. A. S., Noor, N. L. M., ve Ibrahim, E. N. M., 2015) uyumluluk göstermektedir. Önceki çalışmalarda da etkili, net ve dokümante edilmiş proses, üst yönetim desteği, yetenekli takım arkadaşları, yeterli IT altyapısının iş sürekliliği yönetimi için son derece önem taşımakta olduğunu ortaya koymuştur. Ayrıca, Abdullah, Noor & Ibrahim, 2015 süreç ve insanın iş sürekliliği yönetimi açısından en önemli faktörler olduğunu ortaya koymaktadır.

5. Sonuçlar ve Öneriler

5.1. Sonuçlar

Bu çalışmada üç ana kriter ve on üç alt kriter ile iş sürekliliği yönetiminde altı kritik başarı faktörü arasında önceliklendirme problemi için oluşturulan AHP modeli sonucunda metodoloji ve proje yönetimi kritik başarı faktörünün birinci öncelikli olması alternatifinin ağırlığı 0,197 olarak bulunmuştur. Diğer kritik başarı faktörlerinin ağırlıkları dikkate alındığında, iş sürekliliği yönetiminde birinci öncelikli kritik başarı faktörü olarak metodoloji ve proje yönetimi seçeneği seçilmelidir. Takibinde, teknolojik altyapı alternatifi ikinci (0,194); üst yönetim desteği üçüncü (0,186); sürdürülebilirlik dördüncü (0,175); iş etki analizi&risk analizi beşinci (0,129); eğitim ve bilgilendirme altıncı (0,119) sırada yer almıştır. Sonuçlar dikkate alındığında aşağıdaki tablo elde edilmektedir:

Tablo 13. İş Sürekliliği Yönetiminde Öncelikli Kritik Başarı Faktörü Seçim Probleminde Alternatiflerin Öncelik Değerleri

ÖNCELİK DÜZEYLERİ	ALTERNATİFLER	ÖNEM DÜZEYLERİ
Birinci Öncelik	Metodoloji ve Proje Yönetimi	0,197
İkinci Öncelik	Teknolojik Altyapı	0,194
Üçüncü Öncelik	Üst Yönetim Desteği	0,186
Dördüncü Öncelik	Sürdürülebilirlik	0,175
Beşinci Öncelik	İş Etki Analizi&Risk Analizi	0,129
Altıncı Öncelik	Eğitim ve Bilgilendirme	0,119
TOPLAM		**1**

5.2. Öneriler

Yapılan analizler sonucunda, çalışmanın bulgularına göre iş sürekliliği yönetiminde kritik başarı faktörleri konusunda özel önerilerde bulunmak mümkündür. Bu öneriler;

Sektöre yönelik öneriler: Çalışmadaki AHP değerlendirmesi hizmet sektöründe (sigorta) görev alan bir uzman tarafından doldurulmuştur. Değerlendirme hizmet sektörüne göre yapılmıştır. Hizmet sektörü için birinci önceliğe sahip olan bir kritik başarı faktörü, üretim sektörü açısından bakıldığında ilk öncelik olmayabilmektedir. Bu nedenle bundan sonraki çalışmalarda AHP değerlendirmesi yapacak olan uzman üretim sektöründen seçilip sonuçlar karşılaştırılabilir.
İş sürekliliği yönetimine yönelik öneriler: İş kesintisine neden olan yeni faktörlerin keşfedilmesine olanak sağlayan daha detaylı araştırmaların yapılarak faktörlerin önceliklerinin belirlenip sadece tek bir departmana ya da tek bir endüstriye bağlı kalınmadan her alanda iş sürekliliği yönetimi uygulanması gerektiğini vurgulayan bir çalışma yapılabilir.

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APPLICATION FOR MINIMUM REDUCTION OF RAW MATERIALS IN MINING SECTOR FOR COUNTRY OF DENİZLİ

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Abstract

In our era, the products used together with the rapid consumption increase have been consumed quickly, and the products produced by the production facilities have increased both in diversity and quantity. As a result, the raw material requirements of the enterprises have become more normal and the raw material resources from rapid consumption have started to decrease and become more expensive. Businesses have also begun to use raw materials more efficiently and avoid wastes to reduce the cost of manufactured products. Many of the businesses that have been working on wastage, one of the most important qualities of lean manufacturing philosophy, have made continuous improvements on this subject. The implementation of lean production is a difficult choice because it has not yet been elucidated by workers' management, factory settling, material and information flow systems and significant differences between traditional and poor production systems in production scheduling / control methods. These differences make it difficult for organizations based on historical production methods to anticipate the magnitude of the benefits to be gained by applying lean principles in their unique circumstances. Along with lean production, the removal of wastes should also affect the accounting processes. In essence, this process should be useful to lean manufacturing philosophy elements and should reflect the entire production flow. In this study, it was aimed to reduce the waste of raw materials in mining sector. Studies were made on a marble production factory selected as a pilot and the blocks from marble quarry, which is the main source of raw materials, were studied and a suggestion was made to use the waste fragments formed in the block cutting stage more effectively. In this study, cost analysis method was used to measure the accuracy of the suggestion.
Keywords: Cost analysis, Lean manufacturing, Raw Materials and Waste, Mining Sector

MADEN SEKTÖRÜNDE HAMMADDE İSRAFININ AZALTILMASINA YÖNELİK DENİZLİ İLİNDE YAPILAN UYGULAMA

Özet

Çağımızda hızlı tüketimin artmasıyla birlikte kullanılan ürünler de çabuk tüketilir olmuş, üretim tesislerinin ürettikleri ürünler hem çeşitlilik hem de miktar olarak artmıştır. Tüm bunlara bağlı olarak işletmelerin hammadde ihtiyacı normalden fazla hale gelmiş ve hızlı tüketimden kaynaklanan hammadde kaynakları da azalmaya ve daha pahalı olmaya başlamıştır. İşletmeler de üretilen ürünlerin maliyetlerine azaltmak için hammadde kaynaklarını daha etkin kullanmaya ve israflardan kaçınmaya başlamışlardır. Yalın üretim felsefesinin en önemli niteliklerinden biri olan israf konusunda birçok çalışma yapılmış işletmeler bu konu üzerinde sürekli olarak iyileştirmelerde bulunmuşlardır. Yalın

üretimin uygulanması, işçilerin yönetimi, fabrika yerleşimi, malzeme ve bilgi akış sistemleri ve üretim çizelgeleme / kontrol yöntemlerinde geleneksel ve zayıf üretim sistemleri arasındaki önemli farklılıklar nedeniyle henüz açıklanmadığı için zor bir tercihtir. Bu farklılıklar, tarihsel olarak geleneksel üretim yöntemlerine dayanan örgütlerin, kendi benzersiz koşullarında yalın ilkeleri uygulayarak sağlanacak faydaların büyüklüğünü önceden tahmin etmesini zorlaştırmaktadır. Yalın üretimle birlikte israfların ortadan kaldırılması unsurlarının muhasebe süreçlerine de etki etmesi gerekmektedir. Söz konusu bu süreç, yalın üretim felsefesi unsurlarına faydalı olmalı ve üretim akışlarının tamamını yansıtabilmelidir. Bu çalışmada maden sektöründeki hammadde israfının azaltılması amaçlanmıştır. Pilot olarak seçilen bir mermer üretim fabrikasında incelemelerde bulunulmuş, hammaddenin asıl kaynağı olan mermer ocağından gelen bloklar üzerinde çalışmalar yapılmış ve blokların kesim aşamasında oluşan artık parçaların daha etkin kullanılabilmesi için bir öneride bulunulmuştur. Bu çalışmada önerinin doğruluğunun ölçülmesi açısından maliyet analizi yöntemi kullanılmıştır.
Anahtar Kelimeler: Maliyet analizi, Yalın Üretim, Hammadde israfı, Maden Sektörü

THE PROBLEMS OF TURKEY'S BANANA SECTOR AND ANALYZE OF INFLUENTIAL FACTORS OF ITS PRODUCTION AND IMPORT

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Abstract

Bananas are cultivated and traded in many countries for commercial purposes in many regions of the world that have tropical and subtropical climatic conditions. It is known that banana is first brought to Turkey in the 1750s, but it started to be produced for commercial purposes in the 1930s. Although Turkey is known as the agricultural country, the bananas production is only made in the Mersin, Antalya and Adana provinces of the Mediterranean region due to the climate in terms of land, but the production is inadequate in terms of meeting the domestic demand. It seems that imports have been made from countries that produce bananas in order to meet this need. According to the data of Turkey in 2015, it is seen that the production amount is 270 thousand tons and the import amount is 218 thousand tons. Despite the inability to meet domestic demand, exports have been made to foreign countries in small quantities, and this amount of export is 13.8 tons value in 2015. In the negotiations with producers has seen the producers are informed about the government incentives given for production and the tax shields which are imported up to 150% and glad about these applications, but not glad about illegal bananas imports, irrigation water troubles and urbanizations.

In the analysis part of this study, the exchange rate fluctuation which is important for bananas importers and producers, the relations between exchange rate and bananas imports and producer banana prices and the relations between producer banana prices and bananas imports were examined by using correlation and regression test in 1994-2015 period. As a result of analysis, the effects of exchange rate changes on domestic banana producer prices and banana imports, as well as the effects of changes in banana producer prices on bananas imports are announced.

Keywords: Banana Import, Banana Exports, Banana producer price, Dollar exchange rate, Correlation and Regression Analysis.

TÜRKİYE'NİN MUZ SEKTÖRÜNDEKİ SORUNLAR, ÜRETİMİ ve İTHALATINI ETKİLEYEN FAKTÖRLERİN ANALİZİ[1]

Özet

Dünyanın tropik ve subtropik iklim koşullarına sahip olan birçok bölgesinde ticari amaçla üretilen muz ürünü birçok ülkede yetiştirilmekte ve dış ticareti yapılmaktadır. Ülkemize muz ürünü ilk defa 1750'li yıllarda getirildiği bilinmekte olup, ancak ticari amaçlı olarak üretimine 1930'lu yıllarda başlanmıştır. Türkiye tarım ülkesi olarak bilinmesine rağmen muzun üretimi arazi açısından ikliminden dolayı sadece Akdeniz bölgesinin Mersin, Antalya ve Adana illerinde yapılmakta olup, ancak üretim

[1] Bu çalışma, Fatih BOZ'un, Yrd. Doç. Dr. Namık Hüseyinli danışmanlığında hazırladığı ve 2016 tarihinde Alanya Alaaddin Keykubat Üniversitesi, Sosyal Bilimler Enstitüsü, tarafından kabul edilen "*Türkiye'de Muz Üretimi Ve Dış Ticaretinin Diğer Ülkelerle Karşılaştırılması: Türkiye'nin Muz İthalatına Yönelik Korelasyon ve Regresyon Analizi*, başlıklı yayımlanmamış yüksek lisans tezinden uyarlanmıştır.

yerli talebi karşılama açısından yetersiz kalmaktadır. Bu ihtiyacın karşılanması için muz üretimi yapan ülkelerden ithalat yapıldığı görülmektedir. Türkiye'nin 2015 yılı verilerine göre üretim miktarının 270 bin ton, ithalatının ise 218 bin ton olduğu görülmektedir. Üretimin iç talebi karşılamamasına rağmen dış ülkelere az miktarda da olsa ihracat yapılmış olup bu ihracat miktarı ise 2015 yılı verilerine göre 13.8 tondur.

Üreticilerle yapılan görüşmelerde üretim için verilen devlet teşvikleri ve ithalata konan %150'lere varan vergi kalkanından üreticilerin memnun olduğu, imarlaşma, sulama suyu sıkıntısı ve kaçak yolla yapılan ithalattan ise üreticilerin yakındığı tespit edilmiştir. Bu çalışmanın analiz kısmında muz ithalatçıları ve üreticileri için önemli olan döviz kuru oynaklığıyla muz ithalatı, üretici muz fiyatı ve üretici muz fiyatıyla muz ithalatı arasındaki ilişkiler 1994-2015 dönemi ele alınarak, korelasyon ve regresyon testi ile incelenmiştir. Analiz sonucunda döviz kurundaki değişmelerin yerli muz üretici fiyatlarına ve muz ithalatına olan etkisi ayrıca muz üretici fiyatındaki değişimlerin muz ithalatına etkileri açıklanmıştır.

Anahtar Kelimeler: Muz İthalatı, Muz İhracatı, Muz üretici fiyatı, Dolar kuru, Korelasyon ve Regresyon Analizi.

1. Muz Ürünü Hakkında Genel Bilgi

Muz bitkisi Musaceae (muzgiller) familyasındandır ve Ensete ve Musa olmak üzere iki cinse ayrılmaktadır. Bunlardan Ensete cinsi meyve olarak yenmemekte, sebze olarak ve lif bitkisi olarak değerlendirilmektedir. Meyveleri yenen muz türleri ise Musa cinsine dahildirler (Akova, 1997: 141). Muz, Güneydoğu Asya'nın tropikal bölgelerinde doğal olarak yetişen bir ağaçsı bitkiye ve bu bitkinin yeşil (bazı türlerinde kırmızı veya pembe) kabuklu uzun meyvelerine denir. Tropik ve subtropik bölgelerde yetişen veya yetiştirilen, ağaca benzeyen, 2-3 metre boyunda, mor çiçekler açan, meyveleri lezzetli ve nişastaca zengin otsu bitkilerdendir (http://www.turkcebilgi.com/muz#bilgi).

Muz, Afrika ve Hindistan gibi tropikal iklime sahip ülkelerin temel besin maddesi olmaktadır. Batı Hindistan'da "plantain" cinsi büyük muz türleri, soğuk mezeler şeklinde yemek sonrasında tuzluların yanında yenmektedir. Batı Afrika'da muzlar, baharatlı soslarla, et ya da balıkla servis edilen bir ekmeğin yapımında kullanılmaktadır. Batı Hint Adaları'nda, Güney Amerika'da, Afrika ve Asya'da, büyük ya da küçük tüm muzlar baharatlanmakta ve kızartılmaktadır. Hindistan'da ise içi doldurup pişirilmektedir. Muz ne kadar küçükse o kadar lezzetlidir, bu nedenle Martinik'te incir olarak bilinen küçük kırmızı muz türleri, lüks gıda dükkanlarının dışında Avrupa'da bulmak oldukça zor olmaktadır. Küçük ince kabuklu Kanarya muzu ise özel bir lezzete sahiptir (http://eng.ege.edu.tr/~otles/GidaTarihi/Muz.htm).

Muzun tarihçesine bakıldığında, adını Roma'nın ilk imparatoru Oktavius Ougustus'un (M.Ö. 63-64) fizik öğretmeni Antonio Musa'ya karşı duyduğu saygıdan dolayı bu bitkiye Musa olarak adlandırmasından aldığı ve Türkçeye muz kelimesinin Arapçadan girdiği ifade edilmektedir (Kozak, 2003: 72). Muz ana vatanından Batı Avrupa'ya zenci köle ticareti sırasında Gine Körfezi kıyılarındaki plantasyonlardan, önce Kanarya Adalarına, oradan Karaibler'deki San Domingo adasına götürülmüş, oradan da bütün Latin Amerika'ya yayılmaya başlamıştır (Kozak, 2003: 72).

Türkiye muz bitkisiyle ilk defa 1750 yıllarında Mısır'la ilgisi olan zengin bir ailenin süs bitkisi olarak, Mısır'dan Alanya'ya getirmesiyle tanışmıştır. O yıllarda daha çok süs bitkisi olarak yetiştirilen muzun meyve verdiğinin görülmesi üzerine, 1930'lu yıllardan sonra meyvesi için ticari amaçla yetiştirilmeye başlanmıştır. Günümüzde Türkiye'nin en fazla muz üretimi yapılan Anamur ilçesine ise muz 1935 yılında getirilmiştir (Kozak, 2003: 49). İthalat ve ihracat hacmi yüksek ürünlerden birisi olan muz Hindistan, Brezilya, Filipinler, Kosta Rika, Kolombiya, Honduras ve Endonezya gibi ülkelerde tropik iklim şartlarında, Mısır, Ürdün, İspanya (Kanarya Adaları), Güney Afrika, İsrail, Lübnan ve Ürdün gibi ülkelerde subtropik iklim şartlarında yetiştirilmektedir. Türkiye'de mikro klima alanlarında yetiştirilen muz Alanya ve Gazipaşa'da genelde açıkta, Anamur ve Bozyazı'da ise örtü altında yetiştirilmektedir (Gübbük vd., 2003: 2).

Her türlü nemli tropikal bölgelerde yetişen muz dünyanın en fazla yetiştirilen 4. meyvesidir (http://www.rainforest-alliance.org/kids/species-profiles/banana). Muz dünya genelinde tarım yoluyla elde edilen gıda ürünleri içinde en fazla üretilen ilk 9 ürün içerisinde yer almakta ve Dünya tarımsal ürün değeri içerisinde ortalama binde dokuzluk paya sahiptir.

Tablo 1. Dünyada Tarım Yoluyla En Fazla Üretimi Yapılan Ürünler

Sıralama	Ürünler	Üretim Miktarı (ton)
1	Şeker Kamışı	1.842.266.284
2	Mısır	872.791.597
3	Pirinç	738.187.642
4	Buğday	671.496.872
5	Nişasta	269.125.963
6	Patates	365.365.367
7	Soya Fasulyesi	241.142.197
8	Domates	161793.834
9	**Muz**	**101.992.743**

Kaynak: http://faostat.fao.org/site/339/default.aspx

Tablo 1'de 2012 yılı itibariyle Dünyada tarım yoluyla elde edilen gıda ürünlerinden en fazla miktarda üretilen ilk 9'unun üretim miktarları verilmektedir. Buna göre şeker kamışı üretimi ilk sırayı almış, muz meyvesi ise 101.992.743 tonla dokuzuncu sırada yer alarak dünya gıda üretiminde önemli bir hacme sahip olmuştur.

2. Türkiye'de Muz Sektöründeki Sorunlar

Türkiye'de muz üretiminin gelişimi açısından özellikle üreticilerin dile getirmiş olduğu sorunlara dikkat edilmesi gerekmektedir. Çalışma sırasında üreticilerle yapılan röportaj ve görüşmelerde bu sorunlar özellikle dile getirilmiştir. Üreticilerin geneli özellikle kaçak yollardan Türkiye'ye muz getirilmesinden yakınmaktadır. Muzun fiyatını etkileyen bu gibi sorunların ortadan kalkması için devletin bu konularla daha fazla mücadele etmesi ve kaçak muz girişinin önlemesi gerekmektedir.

Muz üreticileri ve yatırımcılar için muz üretimine verilen teşvikler memnuniyetle karşılanmakta ve arazi sahibi olamayan yatırımcılar için bile cazip hale gelmektedir. Bu teşvikler bazı kırsal bölgelerdeki muz ekimine elverişli arazileri sahiplerinden kiralamaya ve 10-15 yıl gibi sürelerle yatırım yapmaya sevk etmektedir. Ancak bu bölgeler açısından da var olan bazı sorunlar yatırımı olumsuz etkilemektedir. Örneğin ekim yapmak isteyen birçok yatırımcı bölgede sulamaya yeterli miktarda su olmadığından yapmak istememektedirler. Bölgenin sulama sorunlarının ele alınarak daha hızlı bir şekilde çözümlenmesi yatırımcıyı üretime teşvik edecektir.

Bölgede muz üretimi açısından var olan sorunlar üretim oranı üzerinde etkili olmaktadır. Bölge halkı muz üretimine verilen devlet teşvikine ilgi duyarak yatırım yapmak istemesine rağmen bazı engeller çıkmaktadır. Bazı arazi sahipleri arazilerinin çok ortaklı olması nedeniyle yatırım yapamamakta ve ortakların tercihleri yönünde hareket etmektedirler. Arazi sahiplerinin bu nedenle muz üretilebilecek yerlerde daha karlı olarak görülen imarlaşmaya öncelik verdikleri görülmektedir.

Bölgelerde imar uygulanması yapıldıkça üretim arazilerinin deniz seviyesinden daha yukarılara doğru kaydığı görülmektedir. İleriki dönemlerde muza uygun bölgelerin imarlaşması artan üretimi tersine çevirebileceği için uzun vadeli önlemler gerekmektedir. Çünkü muz üretimi sadece belli yerlerde yapılabilmektedir. Örneğin Alanya bölgesinde hızlı bir imarlaşmanın etkisiyle vatandaşlar arazilerini imar uygulamasında kullanmayı daha karlı görmekte ve tercihlerini bu yönde kullanmaktalar. Bu nedenle muz üretimine uygun bölge haritasının çıkarılarak imar dışı tutulacak alanlar olarak belirlenmelidir.

Muz üreticileri geneli ithalatın azaltılmasını ve yerli üretim muz tüketiminin artmasını istemektedir. Devletin uyguladığı yüksek miktardaki ithalat vergileri üretim üzerinde olumlu etki doğurmaktadır. Ancak bu verginin yerli üretimin çok yüksek olduğu aylarda bir miktar daha arttırıp yerli ürün tüketimine daha fazla destek sağlanabilir. Ayrıca devletin su, kimyevi maddeler ve gübre gibi girdi maliyetlerinin yüksekliği açısından şikayetleri dikkate alarak girdi teşviklerini arttırması gerektir.

3. Türkiye'de Muz Üretimi, Fiyatı, İthalatı ve İhracatı

Muz bitkisi tropikal iklim şartlarına ihtiyaç duyduğundan Türkiye'de sadece Mersin ve Antalya illerinde örtü altı ve açık alanlarda yetiştirilmektedir. Türkiye'deki muz üretimi, iç tüketimin yaklaşık

yarısını karşılamakta ve tüketim ile üretim arasındaki fark ithalat yoluyla karşılanmaktadır (Türkay ve diğ., 2006: 2). Türkiye 2000 yılında 17.250 dekar muz ekili alana sahip olmuş ve 64 bin ton muz üretimi yapmıştır. Ayrıca aynı yıl dekar başına 3.7 ton muz üretimi gerçekleşmiştir. Ekili alan ve üretim miktarı düzenli olarak artış göstermiş 2015 yılına gelindiğinde 58 bin dekar toplam ekili alana ve 270 bin ton muz üretimine ulaşarak rekor tüm zamanların rekorunu kırmıştır. Ayrıca 2015 yılına gelindiğinde modern tarım teknikerinden faydalanılarak üretim yapıldığından dekar başına üretimin 4.6 tona ulaştığı görülmektedir (Tuik, 2016).

Yurt içi muz üretim maliyetlerinin dünya fiyatlarının oldukça üzerinde olması sebebiyle Türkiye'de muz sektörü yüksek gümrük vergileriyle korunmaktadır (Subaşı, 2016: 77). Türkiye'nin sahip olduğu değişik ekolojik şartlar hemen hemen her çeşit meyve ve sebze yetiştirilmesine olanak sağlamaktadır. Türkiye'nin sahip olduğu tarımsal üretim potansiyeli, sadece üretilen meyve ve sebzelerin çeşitliliği bakımından değil aynı zamanda toplam üretim miktarının yüksek olmasından kaynaklanmaktadır. 2015 yılında Türkiye sebze üretimi 27,8 milyon ton, meyve üretimi ise 18 milyon ton olarak tespit edilmiştir (www.tuik.gov.tr).

Türkiye'nin muz üretiminde açık ara önde olan ili Mersindir. 2015 yılında mersin Türkiye muz üretiminin %64'ünü karşılamıştır. Mersin de örtü alanda üretilen muz miktarı ve açık alanda üretilen muz miktarından daha fazladır. 2009-2015 döneminde toplam 1.955.295 ton muz üretimi yapılmış bunun %92'si örtü altında, %8'i ise açık alanda üretilmiştir. Örtü altı alanda en az üretim 2000 yılında, açık alanda en az üretim ise 2006 yılında gerçekleşmiştir. Örtü altı ekili alanın ve üretim miktarı en fazla 2015 yılında, açık alanda ekili alan ve üretim miktarı en fazla 2013 yılında gerçekleşmiştir (Tuik, 2016).

2000 yılında örtü altı muz ekili alan toplam ekili alanın %85,6'sını, 2015 yılında %77,8'ini oluşturmaktadır. Bu oranın azalmasına neden olarak örtü altı alanda ekili muz üretiminde artış yaşanırken açık alanda ekili muz üretiminin de artması söylenebilir. 2000 yılında Mersin ilinde üretilen muz miktarının %91'i kapalı alanda üretilmişken bu oran 2015 yılında da değişmeyerek %91 düzeyinde olmuştur (Tuik, 2016).

Antalya ili Türkiye'nin muz üretimi yapan diğer ilidir ve 2015 yılında Türkiye toplam muz üretiminin %36'sını karşılamıştır. Antalya'nın Örtü altı muz üretimi ve ekili alanları 1999-2006 döneminde bir önceki yıla göre her yıl artış göstermiştir. Örtü altı üretim 1999-2006 yılları arasında sürekli artmış, 2007 ve 2012 yıllarında ise bir önceki yıla göre azalma göstermiştir. Ayrıcaörtü altı muz üretimi 2013 yılından itibaren tekrar düzenli olarak artmış ve 2015'de ise en fazla üretim gerçekleşmiştir (Tuik, 2016).

Açık alanda en fazla muz üretiminin 2007 yılında 54 bin ton, en az üretimin ise 2000 yılında 25,5 bin ton düzeyinde yapılmıştır. 1999-2015 döneminde açık alanda toplam 724.461 ton, örtü altında ise 148.624 ton muz üretimi yapılmıştır. 17 yıllık toplam muz üretiminin %82,9'u açık alanda gerçekleşmiş. Açık alanda yapılan muz üretimi 1999 yılında 10.495 dekar iken 2000 yılında 9.975 dekara gerilemiştir. Açık alanlarda yapılan muz üretimi bir önceki yıla göre 2003, 2008 ve 2009 yıllarında da gerileme yaşamış, 2010 yılından itibaren tekrar artışa geçerek 2015 yılına kadar düzenli olarak artış göstermiştir (Tuik, 2016).

Türkiye yıllık muz talebini yerli üretimle karşılayamadığından dolayı her yıl düzenli olarak belirli miktarlarda muz ithalatı yapmaktadır (Kozak, 2003: 76). Türkiye'nin muz ithalatı 2002-2015 döneminde düzensiz şekilde artış göstermiştir. En fazla ithalat ve ithalata yapılan harcama 2013 yılında 235 bin ton ve 115 milyon dolar, en az miktarda ithalat ve ithalat harcaması ise 2002 yılında 65 bin ton ve 25 milyon dolar düzeyinde gerçekleşmiştir(Tuik, 2016). Türkiye muz ürününün üretiminde kendi talebini karşılamıyor olsa bile yıllık az miktarlarda komşu ülkelere ve serbest bölgelere taze ve yeşil muz ihracatı da yapmaktadır.2015 yılında yaklaşık 13 ton muz ihracatı yapmıştır (Tuik, 2016).

Türkiye de yıllık ortalama kg başı muz fiyatı en fazla 2008 yılında oluşarak 3,26 TL'yi görmüştür, en düşük fiyat ise güncel değeriyle 35 kuruş ile 1994 yılında oluşmuştur(Tuik, 2016).

4. Muz İthalatına Yönelik Korelasyon Ve Regresyon Analizi

4.1. Gerekçe Ve Yöntem

Çalışmanın bu bölümünde döviz kurundaki değişmelerin yerli muz üretici fiyatlarına, muz ithalatına olan etkisi yarıca muz üretici fiyatındaki değişimlerin muz ithalatına olan etkileri analiz edilmiştir.

4.1.1. Araştırmanın Problemi

Dünyada tarım ülkesi olarak bilinen Türkiye 2015 yılında muz ithalatına 108.359.269$ tutarında bir harcamada bulunmuştur. Türkiye'de muz üretimi için arazi ve devlet teşvikleri bulunmasına rağmen her yıl tüketilen muzun yaklaşık %50'si ithalatla karşılanmaktadır. Türkiye'de 2015 yılı itibariyle toplam muz ekili alan 58.360 dekardır. Muz üretiminin 28.730 dekarı kapalı alanda (örtü altı, sera), 30.233 dekarı ise açık alanda yapılmaktadır. Açık alanda 1 dekarda üretilen muz miktarı kapalı alanda üretilen muz miktarının ancak %50'si kadarı olabilmektedir.

Bu araştırmada ele alınan temel problem; Türkiye iç piyasa talebini karşılayacak hatta ihracatta bulunacak seviyede muz üretim potansiyeline sahip olmasına rağmen halen muz ithalatına gitmesidir. Bu bağlamda Türkiye'nin yeterli düzeyde muz üretiminde bulunabilmesine engel teşkil eden unsurların belirlenmesi gerekmektedir. Bu nedenle araştırmada, döviz kurundaki, üretici muz fiyatındaki ve muz ithalatındaki değişmeler arasındaki ilişkinin yönü ve derecesi belirlenerek, döviz kurunun muz üretici fiyatları ve muz ithalatı üzerindeki etkisi ile muz üretici fiyatlarının muz ithalatı üzerindeki etkisi incelenip öneriler sunulacaktır.

4.1.2. Araştırmanın Amacı ve Yöntemi

Araştırmanın amacı Türkiye'de üretici muz fiyatları ve muz ithalatı üzerinde döviz kurundaki değişmelerin etkisini ve muz üretici fiyatının muz ithalatı üzerindeki etkisini belirlemektir. Döviz kuru olarak dış ticarette en çok kullanılan para birimi olan dolar tercih edilmiştir.

Araştırmada nicel veri toplama tekniklerinden yararlanılmıştır. Bu amaçla TÜİK ve TCMB elde edilen veriler kullanılmıştır. Araştırmadan elde edilen bulgular ve bulgulardan elde edilen sonuçlar korelasyon ve regresyon analizleri yöntemiyle değerlendirilip yorumlanmıştır.

4.1.3. Araştırmanın Kısıtları ve Varsayımları

Araştırmada kullanılan veriler 1994 - 2015 arası dönemi kapsamaktadır. Bütün veriler yıllık dönemler halinde analize dahil edilmiştir. Regresyon analizleri yapmak için SPSS istatistik programı kullanılmıştır.

Döviz kurundaki değişmelerin yerli muz fiyatlarını, muz ithalatını ve yerli muz üretici fiyatının muz ithalatını etkileyeceği öngörülmektedir. Diğer bir ifadeyle, döviz kurunun yüksek olduğu dönemlerde yerli muz talebinin artış olacağından yerli muz fiyatının yükseleceği buna karşılık muz ithalatının azalacağı ayrıca muz üretici fiyatının yüksek olduğu dönemlerde muz ithalatının artacağı beklenmektedir.

4.1.4. Araştırmada Kullanılan Veriler

Araştırmada kullanılan veriler olan döviz kuru, Türkiye yıllık muz ithalatı ve muz üretici fiyatları aşağıdaki Tablo 2'de topluca gösterilmektedir.

Döviz Kuru ($): Döviz kuru, bir birim ülke parasının diğer bir ülke parası cinsinden fiyatına, değerine denir. Bu kavram iki taraflı bir ilişkiyi içerir, bu yüzden iki taraflı (nominal) döviz kuru olarak da adlandırılır. Türkiye muz ithalatı dolar cinsinden yapıldığı için söz konusu değişken dolar kuru olarak seçilmiş ve yıllık dolar kuru TCMB'den alınmıştır.

Muz İthalatı (Ton): Türkiye yaklaşık olarak her yıl tüketilen muz miktarının yarısına yakınını ithal yolla karşılamaktadır. Araştırmada kullanılan muz ithalatı veriliri TUİK'den elde edilmiştir.

Muz Üretici Fiyatları (KG/TL): Araştırmada kullanılan yıllık ortalama muz üretici fiyatları TUİK'den elde edilmiştir.

4.1.5. Araştırmanın Hipotezleri

Araştırmanın hipotezleri aşağıdaki gibi sıralanabilir;

H1: Döviz kuru ile muz üretici fiyatları arasında doğrusal anlamlı bir ilişki vardır.
H2: Döviz kuru ile muz ithalatı arasında ters yönlü anlamlı bir ilişki vardır.

H3: Muz üretici fiyatları ile muz ithalatı arasında doğrusal anlamlı bir ilişki vardır.
H4: Döviz kuru muz üretici fiyatları üzerinde anlamlı bir etkiye sahiptir
H5: Döviz kuru muz ithalatı üzerinde anlamlı bir etkiye sahiptir.
H6: Muz üretici fiyatları muz ithalatı üzerinde anlamlı bir etkiye sahiptir.

4.2. Araştırmanın Bulguları

Yapılan analiz sonucunda bir takım bulgular elde edilmiştir bunlar aşağıdaki gibi açıklanmaktadır;

4.2.1. Döviz Kuru, Üretici Fiyatı ve Muz İthalatı Arasındaki İlişki

Döviz kuru, muz üretici fiyatları ve ithalatı arasında anlamlı bir ilişki olup olmadığını belirlemek için korelasyon analizi yapılmış ve sonuçlar Tablo 2'de gösterilmiştir.

Döviz kuru, muz üretici fiyatları ve ithalatı arasındaki ilişkinin yönü ve şiddetinin belirlenebilmesi için Pearson Korelasyon katsayıları hesaplanmıştır. Korelasyon katsayısı, iki değişken arasındaki ilişkinin ölçüsüdür ve -1 ile +1 arasında değişim gösterir (Altınok vd., 2012: 228).

Tablo 2. Döviz Kuru, Üretici Fiyatları ve Muz İthalatı Arasındaki İlişki

		Kur	Üretici Fiyatı	Log Muz İthalatı
Kur	PearsonCorrelation	1,00		
	Sig. (2-tailed)			
	N			
Üretici Fiyatı	PearsonCorrelation	0,672**	1,00	
	Sig. (2-tailed)	0,001		
	N	22		
Log Muz İthalatı	PearsonCorrelation	0,524*	0,481*	1,00
	Sig. (2-tailed)	0,012	0,024	
	N	22	22	

**. Korelasyon 0,01 düzeyinde anlamlıdır (2-tailed).
*. Korelasyon 0.05 düzeyinde anlamlıdır (2-tailed).

Tablo 2'deki korelasyon analizi sonuçları incelendiğinde döviz kuru ile muz üretici fiyatı ve muz ithalatı arasındaki anlamlılık değerlerinin %5'den küçük olması bu ilişkinin istatistiki açından anlamlı olduğunu göstermektedir. Döviz kuru, üretici fiyatları ve logaritması alınmış muz ithalat verileri arasında aynı yönlü (doğrusal) bir ilişki mevcuttur. Bu ilişkiler orta dereceli ve kuvvetli olarak ifade edilebilir. Üretici fiyatı ile kur arasında kuvvetli aynı yönlü bir ilişki varken, muz ithalatı ile kur arasındaki ilişki göreceli olarak daha zayıftır. Bu durum muz ithalatının kurdan çok fazla etkilenmediği anlamına gelmektedir.

Döviz kuru ile muz üretici fiyatları arasındaki korelasyon r= 0,672'dir. Bu iki değişken arasında aynı yönlü ve güçlü bir ilişki bulunmaktadır. Böylece söz konusu dönemde döviz kuru arttıkça muz üretici fiyatları da artış göstermiştir. Bu nedenle H_1 hipotezi kabul edilmiştir.

Logaritması alınmış muz ithalatı ile döviz kuru arasındaki korelasyon r= 0,524'dür. Bu iki değişken arasında aynı yönlü, ancak orta düzeyli bir ilişki vardır. İlgili dönemde döviz kuru artışı muz ithalatının miktarı üzerinde çok büyük bir etki göstermediği söylenebilir. Bu nedenle H_2 hipotezi reddedilmiştir. Hipotezin ret edilmesinin sebepleri çeşitli faktörler olabilir. Örneğin, eldeki verilerin yetersiz olması bu nedenlerin belli başlı etkenlerinden bir tanesidir. İkinci sebep olarak, muz piyasasının ithalata bağımlı olması ve aşırı derece kur artışı olmadığı sürece tüketicinin alımını değiştirmediği söylenebilir. Fakat bu her iki olası açıklamada verisel analiz olmaksızın doğruluklarını kabul etmek gerçekçi değildir.

Benzer şekilde, üretici fiyatı ile logaritması alınmış muz ithalatı arasındaki korelasyon r=0,481'dir. Bu iki değişken arasında aynı yönlü, zayıf bir ilişki vardır. İncelenen dönemde üretici fiyatı arttıkça muz ithalatı da artış göstermiştir. Bu nedenle H_3 hipotezi kabul edilmiştir.

4.2.2. Döviz Kurundaki Değişimin Muz Üretici Fiyatına Etkisi

Döviz kurundaki değişimin, muz üretici fiyatlarını ne ölçüde etkilediğine dair sonuçlara Tablo 3'de yer verilmektedir. Basit doğrusal regresyon analizi sonuçlarına göre, Anova tablosundaki anlamlılık değeri p=0,001<0,05 olması nedeniyle regresyon modeli anlamlıdır.

Regresyon denklemindeki determinasyon katsayısı değerine bakıldığında, muz üretici fiyatında meydana gelen değişmenin %42,4'ü (Düzeltilmiş R^2= 0,424) döviz kuru tarafından açıklanmaktadır. Başka bir ifadeyle, muz üretici fiyatı %42,4 oranında döviz kuruna bağlı şekillenmektedir. İki değişken arasında doğrusal ilişki olmakla beraber doğrusal olmayan ilişki de mevcuttur. Bu ilişkinin belirlenmesi için başka değişkenlerin modelde kullanılması ve test edilmesi gerekmektedir.

Tablo 3. Döviz Kurundaki Değişimin Muz Üretici Fiyatına Etkisi

MODEL ÖZETİ					
Model	R	**R^2**	**Düzeltilmiş R^2**	Tahmindeki Standart Hata	
1	0,672[a]	0,451	0,424	0,7822	
a. Tahminleyiciler: (Sabit), Döviz Kuru					
ANOVA[a]					
	F	**Sig.**			
Regresyon	16,453	0,001[b]			
a. **Bağımlı Değişken:** Üretici Muz Fiyatı b. Tahminleyiciler: (Sabit), Döviz Kuru					
KATSAYILAR[a]					
	B	Std. Hata	Beta	t	Sig.
(Sabit)	0,566	0,317		1,786	0,089
Döviz Kuru	**0,923**	0,228	0,672	4,056	0,001
a. **Bağımlı Değişken:** Üretici Muz Fiyatı					

H_4: Döviz kurundaki değişimin muz üretici fiyatı üzerinde anlamlı bir etkisi vardır, hipotezi için regresyon modeli şu şekilde yazılabilir:

Üretici fiyatı= 0.566+0.923*(Döviz Kuru) (R^2=0,424)

Döviz kurunda 1 birimlik artış üretici fiyatlarında 0.923 birim artışa sebep olmuştur. Buna göre H_4 hipotezi kabul edilerek, döviz kurundaki değişimin muz üretici fiyatını etkilediği sonucuna varılabilir. Döviz kuru ile üretici fiyatları arasında doğrusal bir ilişkinin yanı sıra doğrusal olmayan bir ilişki başka değişkenler yardımıyla açıklanabilir.

4.2.3. Döviz Kurundaki Değişimin Muz İthalatına Etkisi

Döviz kurundaki değişimin, muz ithalatını ne ölçüde etkilediğine dair sonuçlara Tablo 4'de yer verilmektedir. Basit doğrusal regresyon analizi sonuçlarına göre, Anova tablosundaki anlamlılık değeri p=0,012<0,05 olması nedeniyle regresyon modeli anlamlıdır. Regresyon denklemindeki determinasyon katsayısı değerine bakıldığında, muz ithalatında meydana gelen değişmenin %23,9 (R^2=0,239) döviz kuru tarafından açıklanmaktadır. Başka bir ifadeyle, muz ithalat miktarındaki değişmenin %23,9'luk kısmı döviz kurundaki değişmeler tarafından açıklanmaktadır.

Tablo 4. Döviz Kurundaki Değişimin Muz İthalatına Etkisi

MODEL ÖZETİ					
Model	R	**R²**	**Düzeltilmiş R²**	Tahmindeki Standart Hata	
1	0,524[a]	0,275	0,239	0,43079	
a. Tahminleyiciler: (Sabit), Döviz Kuru					
ANOVA[a]					
	F	**Sig.**			
Regresyon	7,582	0,012[b]			
a. **Bağımlı Değişken:** Muz İthalatı b. Tahminleyiciler: (Sabit), Döviz Kuru					
KATSAYILAR[a]					
	B	Std. Hata	Beta	T	Sig.
(Sabit)	4,515	0,175		25,868	0,000
Döviz Kuru	**0,345**	0,125	0,524	2,754	0,012
a. **Bağımlı Değişken:** Muz İthalatı					

H_5: Döviz kurundaki değişimin muz ithalatı üzerinde anlamlı bir etkisi vardır, hipotezi için regresyon modeli şu şekilde yazılabilir:

Muz İthalatı= 4.515+0.345*(Döviz Kuru) (R^2=0.239)

Döviz kurunda meydana gelen bir artışın muz ithalatını azaltması beklenmektedir. Ancak bu çalışmanın regresyon analizi sonucunda, döviz kurundaki 1 birimlik artışın muz ithalatını 0.345 birim arttırdığı görülmektedir. Döviz kurundaki değişimin muz ithalatı üzerindeki etkisinin muz üretici fiyatına nispetle daha az olması nedeniyle H_5 hipotezi reddedilmiştir.

Döviz kurundaki değişimin muz ithalatını etkilemediği sonucuna varılmıştır. Ret edilme sebebini bulmak daha detaylı analiz ya da veri setinin daha çok gözlemle güncellenmesini gerektirmektedir.

4.2.4. Muz Üretici Fiyatındaki Değişimin Muz İthalatına Etkisi

Muz üretici fiyatındaki değişimin, muz ithalatını ne ölçüde etkilediğine dair sonuçlara Tablo 5'de yer verilmektedir. Regresyon analizi sonucuna göre, Anova tablosundaki anlamlılık düzeyi p=0,024<0,05 olması nedeniyle regresyon modeli anlamlıdır. Muz ithalatında meydana gelen değişmenin %19,30'luk (R^2=0,193) kısmı muz üretici fiyatı tarafından açıklanmaktadır. Diğer bir ifadeyle, muz ithalat miktarındaki değişmenin %19,30'u muz üretici fiyatı tarafından açıklanmaktadır. Geriye kalan %76,90'lık kısım ise hata terimi vasıtasıyla modele dahil edilmeyen değişkenler tarafından açıklanmaktadır.

Tablo 5. Muz Üretici Fiyatındaki Değişimin Muz İthalatına Etkisi

MODEL ÖZETİ					
Model	R	**R²**	**Düzeltilmiş R²**	Tahmindeki Standart Hata	
1	0,481[a]	0,231	0,193	0,44360	
a. Tahminleyiciler: (Sabit), Muz Üretici Fiyatı					
ANOVA[a]					
	F	**Sig.**			
Regresyon	6,011	0,024[b]			
a. **Bağımlı Değişken:** Muz İthalatı b. Tahminleyiciler: (Sabit), Muz Üretici Fiyatı					
KATSAYILAR[a]					
	B	Std. Hata	Beta	t	Sig.
(Sabit)	4,541	0,182		24,913	0,000
Muz Üretici Fiyatı	**0,230**	0,094	0,481	2,452	0,024
a. **Bağımlı Değişken:** Muz İthalatı					

H_6: Muz üretici fiyatındaki değişimin muz ithalatı üzerinde anlamlı bir etkisi vardır, hipotezi için regresyon modeli şu şekilde yazılabilir:

Muz İthalatı= 4.541 + 0.230*(Muz Üretici Fiyatı) (R^2=0.193)

Muz üretici fiyatındaki bir artışın muz ithalatını artırması beklenmektedir. Bu çalışmada regresyon analizi sonucunda, muz üretici fiyatındaki 1 birimlik artışın muz ithalatını 0.230 birim artırdığı ya da muz üretici fiyatındaki 1 birimlik azalışın muz ithalatında 0.230 birim azalışa yol açtığı görülmektedir. Muz üretici fiyatındaki değişimin muz ithalatı üzerindeki etkisinin az olması nedeniyle H_6 hipotezi reddedilmiştir. Muz üretici fiyatındaki değişimin muz ithalatını etkilemediği sonucuna varılmıştır. Ret edilen hipotez için, yeni değişkenler modele dahil edilmeli ya da veri seti daha çok gözlem içerecek şekilde artırılmalıdır.

5. Sonuç

Bu çalışmada Türkiye'nin muz üretim, fiyat, dış ticareti hakkında genel bilgiler verilmiş yapılan inceleme sonucunda Türkiye muz üretiminde artan bir eğilimin olduğu tespit edilmiştir. Artan muz üretimine rağmen Türkiye'nin yıllık muz ihtiyacının %50'ye yakınının ithalatla karşıladığı görülmüştür. Muz talebinin yarıya yakını ithalat yoluyla karşılanmasına rağmen komşu ülkelere ve serbest bölgelere yıllık az miktarlarda muz ihracatı yaptığı tespit edilmiştir.

Üreticilerle yapılan görüşmeler sonucunda muz sektöründe üretime verilen devlet teşvikleri ve muz ithalatına uygulanan %150'lere varan vergi kalkanı hakkında üreticilerin bilinçli olduğu ve bunu olumlu karşıladıkları tespit edilmiştir. Muz üretiminde bazı bölgelerde halen sulama suyu sıkıntısının olduğu görülmüştür. Kaçak yollarla muz ithalatının yapılması ve bunun fiyatı olumsuz etkilemesi üreticiler tarafından bilinmekte ve bundan yakınılmaktadır. Ayrıca imarlaşmanın üretime olan olumsuz etkilerinden şikayet edildiği görülmüştür.

Ayrıca çalışmanın analiz kısmında döviz kurundaki, üretici muz fiyatındaki ve muz ithalatındaki değişmeler arasındaki ilişkinin yönü ve derecesi belirlenerek, döviz kurunun muz üretici fiyatları ve muz ithalatı üzerindeki etkisi ile muz üretici fiyatlarının muz ithalatı üzerindeki etkisi incelenip öneriler verilmektedir.

1994-2015 dönemi verileri kullanılıp yapılan korelasyon analizi sonucunda döviz kuruyla, üretici muz fiyatları arasında aynı yönlü ve güçlü bir ilişki, döviz kuruyla logaritması alınmış muz ithalatı arasında doğrusal yönlü fakat zayıf bir ilişki, üretici muz fiyatıyla logaritması alınmış muz ithalatı arasında ise doğrusal ve zayıf bir ilişkinin bulunduğu tespit edilmiştir. Döviz kurundaki değişimin, muz üretici fiyatını ne ölçüde etkilediğine dair yapılan regresyon analizi sonucunda muz üretici fiyatında meydana gelen değişmenin %42,4'ü döviz kuru tarafından açıklandığı ve döviz kurundaki değişimin üretici muz fiyatını etkilemediği sonucuna varılmıştır.

Çünkü Türkiye'nin muz üretimi muz talebini karşılamakta yetersizdir. Dolayısıyla muz talebini karşılamak için Türkiye muz ithalatına bağımlı bir ülkedir. Muz ithalatında meydana gelen değişmenin %23,9'unun döviz kuru tarafından açıklandığı, döviz kurundaki değişimin muz ithalatı üzerindeki etkisi muz üretici fiyatına nispetle daha az olduğu ve döviz kurundaki değişimin muz ithalatını etkilemediği sonucuna ulaşılmıştır. Muz ithalatında meydana gelen değişmenin %19,30'luk kısmının muz üretici fiyatı tarafından açıklandığı, muz üretici fiyatlarındaki değişimin muz ithalatı üzerindeki etkisinin az olduğu, muz üretici fiyatlarındaki değişimin muz ithalatını etkilemediği sonucuna varılmıştır.

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A STOCHASTIC DCF MODEL FOR VALUING AND STRESS TESTING BANKS AND ITS APPLICATION

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Abstract

Stress-testing has been conducted throughout all EU member countries after the post-crisis recovery period. The method under which this testing is performed has remained largely a black box for all except for the Central Banks and their advisors. From the few releases, one can conclude the stress-testing was subject to many arbitrary, discretionary and often disputable assumptions. An alternative factor driven cash flow based model for valuing bank economic equity capital is presented. Factors that are subject to uncertainty are identified, analysed, functionally linked to value and ultimately subjected to stochastic processes that are believed to be appropriate. The model is then back-tested on five systemically important banks in Bulgaria using historical data for the period from 2004-2016. The back-testing is used to both validate the model and its behaviour from stochastic prospective. The goal is to produce meaningful figures for the subsequent forward-looking procedure for valuation and uncertainty specification of the value-defining factors. The whole algorithm leads to expected value determination and its expected volatility in the future. An attempt to model unexpected and extreme downside volatility is offered. This is made to best possibly match the specification of the value drivers for the historical period used.
Keywords: bank valuation, stochastic modelling, stress testing, DCF, bank risk

1. Introduction

The valuation of banking financial institutions has always been a serious challenge due to the complexity of these enterprises and their many product lines and activities which comprise the banking business model. This task is additionally complicated by the data aggregation in the financial reports and the presentation of information in a fashion that does not allow derivation of the main determinants of risk, return and ultimately value. A large part of the information is lost in the reporting stage and cannot be reconstructed back to its initial completeness and richness. The presented approach is based on data, that is available to an outside observer, and the goal is to derive the maximum knowledge out of it. What cannot be distilled should be analytically reconstructed with the help of well justified and substantiated assumptions for the particular institution, its analogues, main competitors and the whole market. Initially we start by constructing a hypothetical bank model, that can be subsequently applied to most institutions. The ultimate objective is to apply the model to the five systemically important banks in Bulgaria and conduct an outside observer stress-testing.

2. Approach

First, we apply detailed deterministic modelling of the bank business. The level of precision that we aim to achieve is pre-determined by two considerations: (1) effect on value and (2) availability of reported information. The bank deterministic modelling aims to identify all the main factors with effect on value, their uncertain evolution into the future as well as the proportions within the business model of the bank. This will enable us at a later stage to reduce the model to a few main factor vectors representing growth, income and expense rates. Ultimately, based on the historical information, we will make assumptions for the stochastic specifications of these few vectors and as a result will subject the reduced model to a Monte Carlo simulation, thus making an attempt to stress-test the bank business model from the point of view of an outside observer.

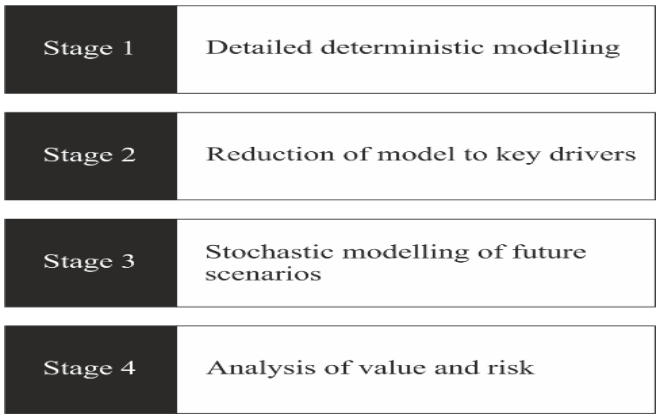

Figure 1. Outline of Approach

3. Economic model of a bank

Let consider an abstract economic model of a bank, which will help us draw the framework of the problem. We base our model along the definition of a banking institution of Mishkin (2004) as "a financial intermediary, taking checking, saving and term deposits which afterwards are used to extend commercial, consumer loans and mortgages as well as for the purchase of securities."

The following notation is used throughout the text: E – bank equity capital; D – issued debt, including loans from financial institutions; F – deposit base; L – loan portfolio; B – bond portfolio; L – liquid assets; R – tangible and intangible assets. We work with market and fair values (present values) as opposed to historical book values. The following equation (Copeland 1988) is considered as valid and used as a basis for the model:

$$L + B + K + R = F + D + E \quad (1)$$

Figure 1 graphically represents this equation in the recognised financial reporting and accounting format.

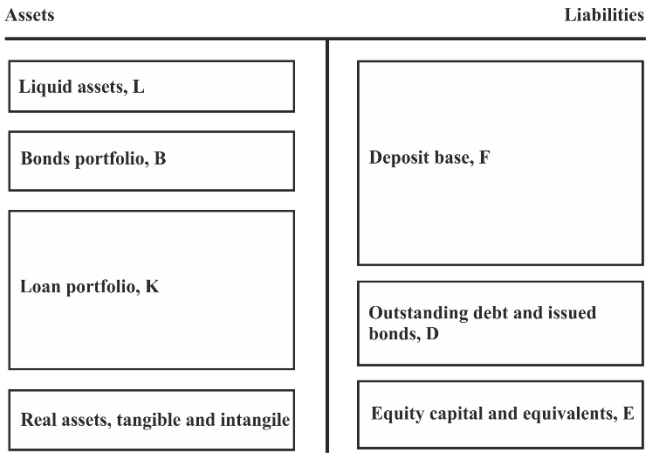

Figure 2. Simplified bank balance sheet

Let consider now the income and expenses of a bank and construct a simplified income statement. We use the following notation: RI – interest income; RE – interest expenses; QI – non-interest income; QE – non-interest expenses; C – operating costs; Tc – corporate income tax; NI – net income after tax. The net income of the bank can be defined by the equation:

$$\widetilde{RI}_t - \widetilde{RE}_t + \widetilde{QI}_t - \widetilde{QE}_t - \tilde{C}_t - \tilde{T}c_t = \widetilde{NI}_t \quad (2)$$

On the basis of the contemporary financial theory we assume as valid the proposition that the value of the equity of a bank is equal to the present value of its future expected free cash flows to equity and that this value is equal to the sum of its expected free cash flows discounted at a rate that is applicable to assets of the same risk class. This definition can be written through the following equation (Copeland 1988):

$$V_e = \sum_{t=1}^{\infty} \frac{E(\widetilde{CFE_t})}{(1+k_e)^t} \quad (3)$$

where V_e is the value of equity, $\widetilde{CFE_t}$ are the cash flows to equity, k_e is the discount rate and E(.) is the expectations operator. The free cash flows are defined through the following equation:

$$\widetilde{CFE_t} = \widetilde{NI_t} - \Delta E_t + \widetilde{OCI_t} \quad (4)$$

Where NI_t is the net income as defined by equation (2), $\Delta E_t$is the increase in the book value of capital implying raising or returning capital whilst $OCI_t$is any other income arising from the business.

4. Factors determining value

Similarly to enterprises from the real sector, the value of banks depends mainly on two factors (a) sales of their products and services and (b) the expected operating results. The latter includes net interest profit, net non-interest profit from fees and commissions but also importantly devaluation of assets and losses provisions. What makes bank enterprises different is that their sales are reflected mainly through the balance sheet, where deposits and loans get recorded.

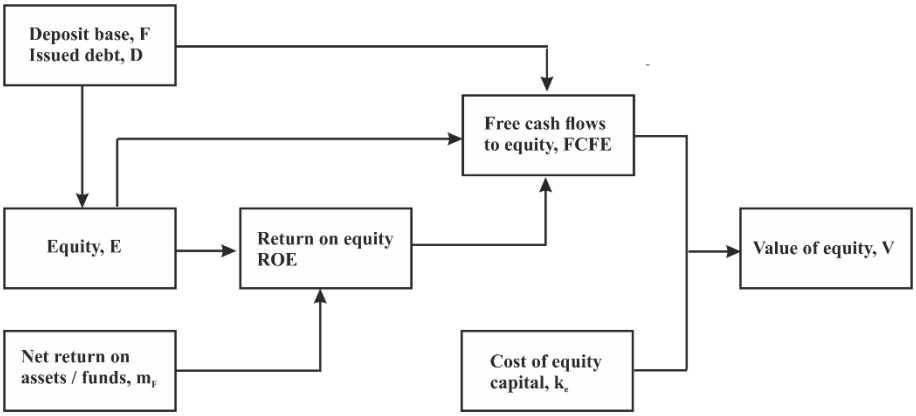

Figure 3. Factors, relations and dependencies

The factor relations and dependencies are represented in Figure 3. The deposits and issued debt determine the capital requirement. These also directly affect the cash flows and can be used for equity buy-backs. The equity capital also directly influences the cash flows attributable to it. The return on the deposits and debt sources of funds as well as equity determine the return on equity. The latter in its absolute terms influences the free cash flows. The free cash flows together with the discount rate (risk) determine the value of equity capital. These relations and their structuring represent an adaptation of the factor model of Koller, Goedhart, Wessels (2010 p.10) for the common business model of a banking financial institution. In general, when valuing banks, the cash flows attributable to equity are used and not the ones attributable to all providers of capital (debt and equity) as the case is with enterprises from the real sector. We treat the debt resources raised as a supply, used for the production of loans and other interest (income) bearing assets. The integrated effect from the simultaneous performance of all of these factors can be reduced to two main factors, that determine the value of a bank, the first one being the growth of the deposits and debt sources and the second being the effective net return on them. We can accept that all else is determined by these two factors including the required equity capital.

Let's consider the elements of equation (2). The interest income depends on the average lending interest rate, the return on the bond portfolio, as well as the volumes of the loan and bond portfolios. The interest expenses depend on the average deposit interest rates, interest rates on bonds and other instruments issued as well as the volumes of deposits, bonds and other debt instruments. The non-interest

revenues from fees and commissions depend on the volume of non-interest bank services and products which in their turn depend on the deposits and debt raised as well as the loan portfolio. The non-interest financial expenses again depend on the volume of banks proprietary operations in order to furnish the provision of its own interest and non-interest-bearing product and services and again ultimately depend on the scale of the deposit base, loan and bond portfolios. The operating costs depend on the size of the branch network and head-quartered operations. The latter ultimately determines the capacity of the bank to generate new volumes of business and hence pose a limit on its realistic growth. The taxes are a function of the tax rate and the income before tax. All these relations and dependencies can be written in the following set of equations:

$$\widetilde{RI}_t = \widetilde{rp}_t\left(\widetilde{B_t} + K_t\right) \quad (5)$$

$$\widetilde{RE}_t = \widetilde{rl}_t\left(\widetilde{D_t} + \widetilde{F_t}\right) \quad (6)$$

$$\widetilde{QI}_t = qi_t(K_t + \widetilde{D_t}) \quad (7)$$

$$\widetilde{QE}_t = qe_t\left(\widetilde{B_t} + K_t + \widetilde{D_t} + \widetilde{F_t}\right) \quad (8)$$

$$\tilde{C}_t = c_t\left(\widetilde{B_t} + K_t + \widetilde{D_t} + \widetilde{F_t}\right) \quad (9)$$

The coefficients in equations (5)…(9), $\widetilde{rp}_t, \widetilde{rl}_t, qi_t, qe_t, c_t$, are respectively the income and expense rates of the corresponding balance positions to which they refer. After substitution of expressions (5), (6), (7) and (8) in equation (2) we can write the equations (10) and (11):

$$\widetilde{NI}_t = (1 - \tau_c)\widetilde{PBT}_t \quad (10)$$

Where $\widetilde{PBT}_t$ e is the profit before taxes, whilst τ_c is the corporate income tax rate.

$$\widetilde{PBT}_t = \widetilde{B_t}(\widetilde{rp}_t - qe_t - c_t) + \widetilde{K}_t(\widetilde{rp}_t + qi_t - qe_t - c_t) + \widetilde{D}_t\left(qi_t - qe_t - \widetilde{rl}_t - c_t\right) - \tilde{F}_t\left(qe_t + \widetilde{rl}_t + c_t\right) \quad (11)$$

The equation (11) represents the proposition that the net income and expenses resulting from the various balance sheet positions depend on the volume of the latter multiplied by the net return or expense rates. In general the value of the equity in a banking financial institution depends on the growth of its balance sheet positions and its net return rates on the funds under management. The growth in its turn depend on the evolution of the deposit base, *F*, the debt capital raised, *D*, loan portfolio growth *K*, and bond portfolio growth, *B*. Lets first assume that these variables grow at common periodic rates over time. Later we will relax this assumption and examine individual growth rate sequences for different balance sheet positions. Following this line of thought we can represent the evolution of these variables in the following way:

$$\tilde{F}_t = F_0 \prod_{i=1}^{t}(1 + \tilde{g}_i) \quad (12)$$

$$\widetilde{D}_t = D_0 \prod_{i=1}^{t}(1 + \tilde{g}_i) \quad (13)$$

$$\widetilde{K}_t = K_0 \prod_{i=1}^{t}(1 + \tilde{g}_i) \quad (14)$$

$$\tilde{B}_t = B_0 \prod_{i=1}^{t}(1 + \tilde{g}_i) \quad (15)$$

After substitution of (12)…(15) in (10) and (11) we obtain:

$$\widetilde{NI}_t = (1 - \tau_c)\left[B_0(\widetilde{rp}_t - qe_t - c_t) + K_0(\widetilde{rp}_t + qi_t - qe_t - c_t) + D_0\left(qi_t - qe_t - \widetilde{rl}_t - c_t\right) - F_0\left(qe_t + \widetilde{rl}_t + c_t\right)\right]\left(\prod_{i=1}^{t}(1 + \tilde{g}_i)\right) \quad (16)$$

When substituting (16) in (3) we can express the equity value through the following equation, which comprises all the identified determinants of value.

$$V_e = \sum_{t=1}^{\infty}\Bigg[(1-\tau_c)\big[B_0(\widetilde{rp}_t - qe_t - c_t) + K_0(\widetilde{rp}_t + qi_t - qe_t - c_t) + D_0\big(qi_t - qe_t - \widetilde{rl}_t - c_t\big) - F_0\big(qe_t + \widetilde{rl}_t + c_t\big)\big]\left(\prod_{i=1}^{t}(1+\tilde{g}_i)\right) - \Delta E_t + \widetilde{OCI}_t\Bigg] / (1+k_e)^t \quad (17)$$

The value of equity in this fashion is put in dependence of the beginning values of B_0, K_0, D_0, F_0, the vector (temporal sequence) $g(g_1,g_2,\dots g_t)$, the vector of the interest income rates of return $rp(rp_1,rp_2,\dots rp_t)$, the vector of the interest expenses rates $rl(rl_1,rl_2,\dots rl_t)$, the vectors of non-interest income rates $qi(qi_1,qi_2,\dots qi_t)$ and non-interest income expense $qe(qe_1,qe_2,\dots qe_t)$, the tax rate and the discount rate. We can further reduce the model by substituting a single returns vector for the income and expense vectors and one single balance sheet variable which can be proxied by the deposit base. The reduced model can be summarised in the following formula:

$$V = \sum_{t=1}^{\infty} \mu_t \Phi_0 \lambda_t \prod_{i=1}^{t} \Gamma_i \quad (18)$$

Where μ_t is a parameter combining the simultaneous effect of all rates of return in (17), Φ_0 are the funds raised as deposits and issued debt that are subsequently extended for income, Γ_i are the growth rates and λ_t are the discount (capitalisation) factors. The model expressed in equation (16) will be used for deterministic modelling of the banks from the sample. After its calibration and derivation of its reduced equivalent as expressed in (17), the parameters singled out will be used for performing stochastic modelling.

5. Application

The devised integrated model is applied to Group 1 of the five systemically important Bulgarian banks as of the end of 2016 according to the classification of the Bulgarian National Bank. Our intention is not form an opinion on the equity values of the banks from the sample but rather test the behaviour and the capabilities of the devised model and the adequacy of the overall approach. The historical data used including quarterly balance sheets and income statements spans the 2007-2016 period. For the stage one of detailed forecasting and deterministic valuation we have used annual data. For determining the variation characteristics of the key factors determining value, we have used quarterly data or forty data points for each bank. In forecasting the future expected performance we have used consensus figures from various sources as to the growth of deposit base, loan portfolio and interest rates. The ultimate goal is to study and assess the applicability of the constructed model.

Table 1 Banks studied

Bank	Name	Total Assets YE 2016 (BGN'000)
1	Unicredit Bulbank	18,625,832
2	DSK Bank	11,642,952
3	First Investment Bank	8,852,470
4	EFG Postbank	6,818,262
5	United Bulgarian Bank	6,831,653

First, we analyse the historical performance of the five banks to determine the key proportions in their respective business models and their growth pattern, rates of return and expenses on funds under management. The latter are evaluated against the backdrop of the effective interest rates during the historical period studied.

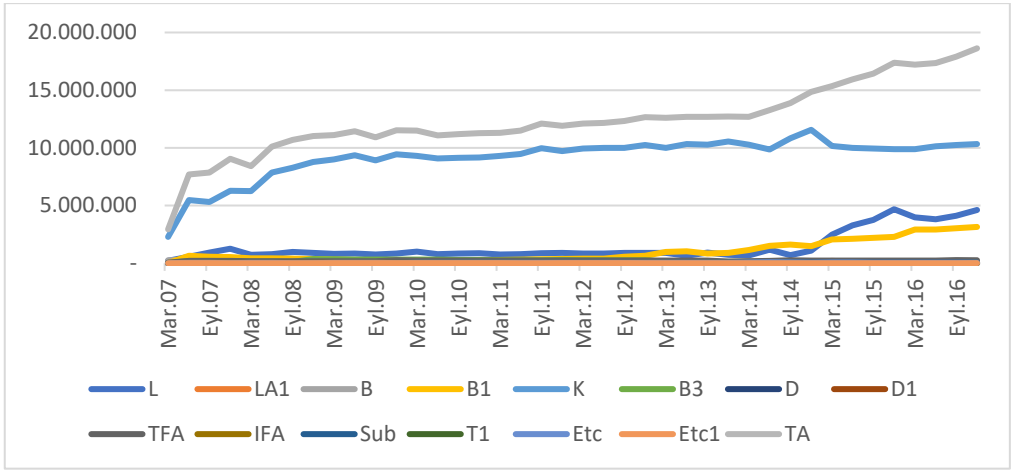

Figure 4. Historical assets evolution of Bank 1

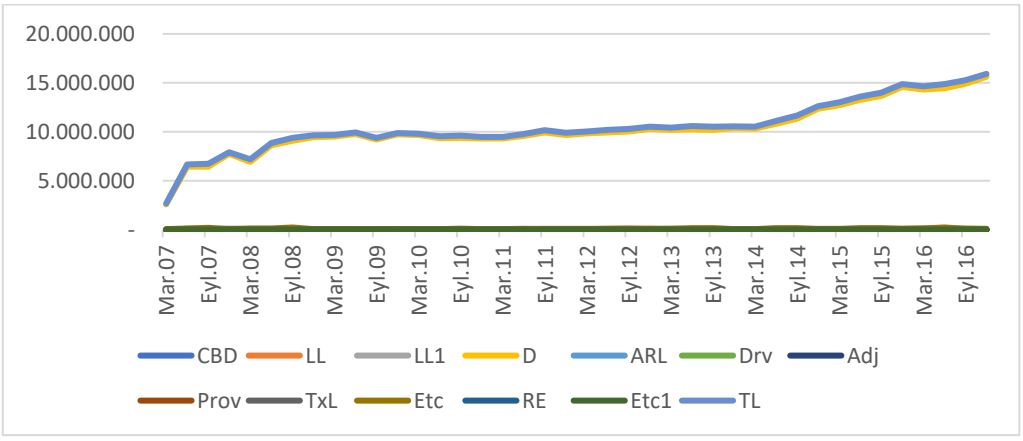

Figure 5. Historical liabilities evolution of Bank 1

We are also interested in the historical levels of the rates in equations (5)…(9), which we calculate for each of the historical periods. The historical rates serve as a basis for forecasting the banks future performance under main expected scenarios. We also develop expectations for the evolution of the deposit base, F_t,, the debt capital raised, D_t , the loan portfolio, K_t and the bonds portfolio, B_t by iteration of the following equations for each consecutive period:

$$B_t = B_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (18)$$
$$K_t = K_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (19)$$
$$F_t = F_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (20)$$
$$D_t = D_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (21)$$

Under the scenario of different rates of growth for the particular positions we impose the condition:

$$(1 - \rho)(F_t + D_t) > (B_t + K_t) \quad (22)$$

where ρ is the minimum deposit reserve requirement.

The capital requirements ΔE_tin equation (4) are modelled as a function of the loan and bond portfolios which reflects the statutory requirement for capital adequacy. We summarize the capital requirement, into a single parameter, $\tilde{\vartheta}_t$ with a mean tending towards the historical average for each and every bank. Our model also introduces an element of uncertainty by adopting a suitably parametrised normal distribution process.

$$E_t = a(B_t + K_t)\tilde{\vartheta}_t \quad (23)$$

Equation (23) is used to project the level of the required capital for all future periods. Having forecasted the deposit base F_t,, the debt capital raised, D_t,, the loan, K_t , and the bond portfolios, B_t, we can substitute the forecasted rates in equations (5)…(9) and derive the interest income, $\widetilde{RI}_t$, interest expenses, $\widetilde{RE}_t$, non-interest income, $\widetilde{QI}_t$ and non-interest expenses, $\widetilde{QE}_t$, as well as the operating costs,

$\tilde{C}_t$. After substitution of their forecast values for each forecast period in (2) and (4), we can determine the free cash flows attributable to the equity capital.

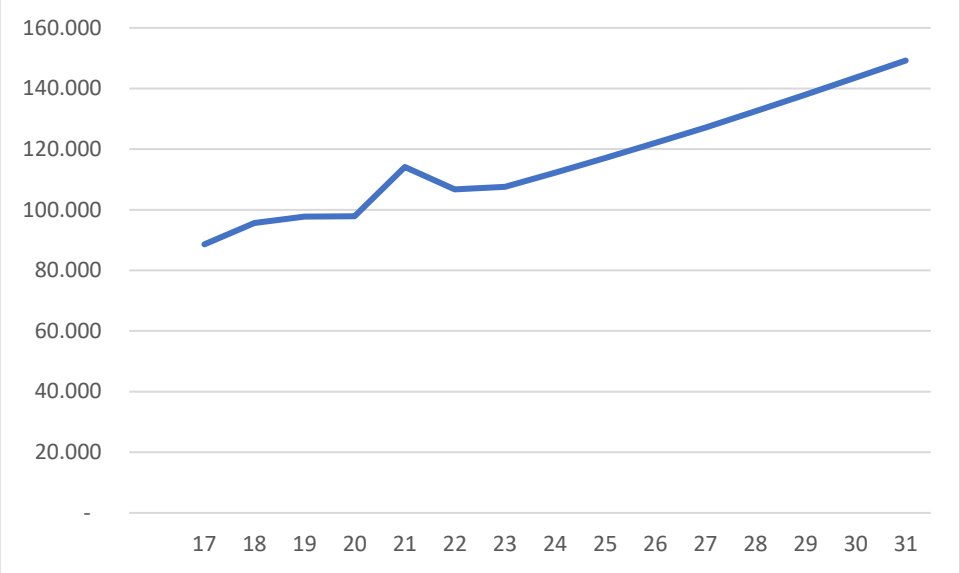

Figure 6. Expected future free cash flows for Bank 4

Due to limited space we do not present historical and forecast income statements, balance sheets and cash flow statements for the banks from the sample.

Second, we study the variations of the key factors and parameters from their general trends and attempt to identify significant deviations due to macro-economic or bank specific events of particular importance. This will later enable us to determine what volatility and jump rates to specify for stress testing of the respective financial institutions.

The rates $\widetilde{rp}_t$, $\widetilde{rl}_t$, qi_t, qe_t and c_t are analysed historically. On the basis of this historical analysis and taking into account other relevant common-sense considerations such as the mean reversion of the short interest rate, realistic assumptions can be formed for their expected future levels and the corresponding variations for those that have uncertain behaviour and are denoted by $\widetilde{\ }$. The estimation of averages, trends and variances on historical basis is of significant importance as they provide us with intuition for the scale and shape of the stochastic processes, which are suitable and can be applied for the subsequent stochastic modelling of the furure behaviour of these parameters. The interest rates of return generally depend on the spot curve. However as we do not have information of the maturity structure of the loan portfolio and deposits the rates of return can be proxied by the short rate.

Third, we build main expected scenarios of development for each bank from the sample. These initially scenarios take the form of detailed projections of the balance sheets, the income statements and the resulting cash flows are later reduced to the model specified in equation (18).

We also develop expectations for the evolution of the deposit base, F_t,, the debt capital raised, D_t , the loan portfolio, and the bonds portfolio by iteration of the following equations:

$$B_t = B_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (18)$$
$$K_t = K_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (19)$$
$$F_t = F_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (20)$$
$$D_t = D_{t-1}(1 + g_t), \quad t = 1,2 \dots n \quad (21)$$

If we assume different rates of growth we impose the condition:

$$(1 - \rho)(F_t + D_t) > (B_t + K_t) \quad (22)$$

where ρ is the minimum deposit reserve requirement.

The capital requirements ΔE_tin equation (4) are modelled as a function of the loan and bond portfolios which should reflect the statutory requirement for capital adequacy. We summerise the capital requirement, into a single parameter, $\tilde{\vartheta}_t$ with a mean tending towards the historical average for each and every bank. Our model also introduces an element of uncertainty by adopting a suitably parametrised normal distribution process.

$$\mathrm{E}_t = \mathrm{a}(B_t + K_t)\tilde{\vartheta}_t \quad (23)$$

Equation (23) is used to project the level of the required capital for all future periods.

Having forecasted the deposit base F_t,, the debt capital raised, D_t,, the loan, K_t , and the bond portfolios, B_t, we can substitute the forecasted rates in equations (5)…(9) and derive the interest income, $\widetilde{RI}_t$, interest expenses, $\widetilde{RE}_t$, non-interest income, $\widetilde{QI}_t$ and non-interest expenses, $\widetilde{QE}_t$, as well as the operating costs, $\tilde{C}_t$. After substitution of their forecast values for each forecast period in (2) and (4), we can determine the free cash flows attributable to the equity capital.

For brevity, we do not present forecast income statements, balance sheets and cash flow statements for the banks from the sample. In order to determine the value of the capital, which as stated in equation (3) is equal to the sum of the present values of the expected future cash flows, we need to discount the latter by a risk adjusted discounting rate, which is applicable to capital assets of the same risk class. We determine the risk class and the discounting rate by applying the CAPM, which is one of a few widely accepted and will serve our purpose. Without indulging in justification and details, we assume that the systematic risk of equity in banking financial institution in developed countries β = 1.00 (leveraged) is applicable to the sample of banks in this study. If we assume that the risk-free rate, r_f equals 1% and the long-term market risk premium $(R_m - r_f)$ equals 6% and apply equation (24) we obtain a required market rate of return for the bank equity capital of 7%. We will apply this rate in the application of the constructed models for the sake of convenience and do not claim that it is the correct discount rate.

$$r_e = r_f + \beta(R_m - r_f) \quad (24)$$

We eliminate the possibility for stochastic behaviour of the discount rate, because theoretically it has to reflect the expectations of an investor at the time of decision making, i.e. the present. The results from the deterministic modelling are presented in Table 2 in percentage deviation from book value.

Table 2. Percentage difference of estimated value from book value of equity

Bank	Value Estimate/Book
1	+54.7%
2	+41.2%
3	-11.4%
4	+38.1%
5	+33.6%

Last, we specify some stochastic processes for the parameters in (18) that we see as appropriate given the past behaviour and specify those at 1.0x, 1.5x and 2.0x historical variation levels. Based on the historical analysis, it can be concluded that the coefficients $\widetilde{rp}_t$, $\widetilde{rl}_t$, qi_t, qe_t и c_t are considerably mutually correlated and thus can be substituted by a single coefficient μ_t. Its beginning value and proportionality can be again determined historically and by summarising our assumptions for r_P, r_L, q_i, q_e и c_t. This can be expressed through the following formula:

$$\mu_t = \Psi(\widetilde{rp}_t \widetilde{rl}_t, qi_t, qe_t c_t, \widetilde{B_t}, K_t, \widetilde{D_t}, \widetilde{F_t}) = \frac{\widetilde{NI}_t}{\widetilde{D_t} + \widetilde{F_t}} \quad (25)$$

Equation (25) implicitly implies, that the coefficient of net return on funds, depends on the specific position rates of return and the structure of the balance sheet. Another implicit assumption made is that the bank will always invest the same proportion of its funds raised. The latter can be eliminated by introducing another multiplier, η_t to explicitly capture the effect of the utilisation of funds. As a result of reduction and simplification we have put the value of a banking enterprise in functional dependency of several variables and random vectors, which we can write as:

$$\tilde{V}_e = \Xi(D_0, F_0, \eta_t, \tilde{\mu}_t, \eta_t, \tilde{\Gamma}_t, \mathrm{a}_t, \tilde{\upsilon}_t, \Phi_t) \quad (26)$$

Let's consider its meaning. According to equation (26) the value of a banking institution depends on the present level of funds under management, $(D_0 + F_0)$; their level of utilisation, η_t; the rate of net return on the funds, $\tilde{\mu}_t$; the growth, $\tilde{\Gamma}$, which in its turn determines the required additional equity capital; the equity capital requirements, a_t; the level of riskiness of assets, υ_t and the capitalisation factors, Φ_t. Three of these variables are denoted as being stochastic. The rate of net return, $\tilde{\mu}_t$ is justifiably a random variable, because it depends on the spot curve and the level of the short interest rate. The growth, ,$\tilde{\Gamma}$ generally follows the rate of growth of the economy and the reflects the capabilities of a bank to position

itself on growth segments. The level of risk of the bank's assets and other exposures, $\tilde{v}_t$ surfaces through the capital adequacy requirement, a_t and generally has a dual dependency from the bank's idiosyncratic risk and its systematic risk. Constructed and applied in this way, despite its reduced form and abstraction, the model represents adequately the relations and dependencies presented earlier in Figure 1 and can be used for simulation experiments.

6. Quantitative results and behaviour of the model

In order to apply the model and conduct experiments, we need to make assumptions for the random processes which govern the behaviour of the stochastic variables in equation (26). Logical candidates include the mean reversion (auto-regressive) process of Ornstein–Uhlenbeck and the Gaussian process of Johnson SU which is very similar to the normal distribution process but allows for introduction of asymmetry and kurtosis. A combined Johnson and jump-diffusion process can be applied to specifically perform stress-tests. This is however left to future research. For the present task we choose to apply the Johnson SU process as it is easier to handle and can allow us to simulate mean-reversion as well.

The Johnson's SU-distribution is a four-parameter family of probability distributions first investigated by N. L. Johnson in 1949. (Johnson, 1949) defined over the (- ∞, + ∞) in the set or real numbers, ℝ. Its probability density function is defined as:

$$(x) = \frac{\delta}{\lambda\sqrt{2\pi}} \frac{1}{\sqrt{1+\left(\frac{x-\xi}{\lambda}\right)^2}} \exp\left[-\frac{1}{2}\left(\gamma + \delta\, sinh^{-1}\left(\frac{x-\xi}{\lambda}\right)\right)^2\right] \quad (27)$$

Where the parameters γ and δ define the shape of the distribution, ξ determines the location and λ defines the scale of dispersion. Example distributions are provided in [Figure x] to enable us to form intuitive understanding of the effects of our assumption.

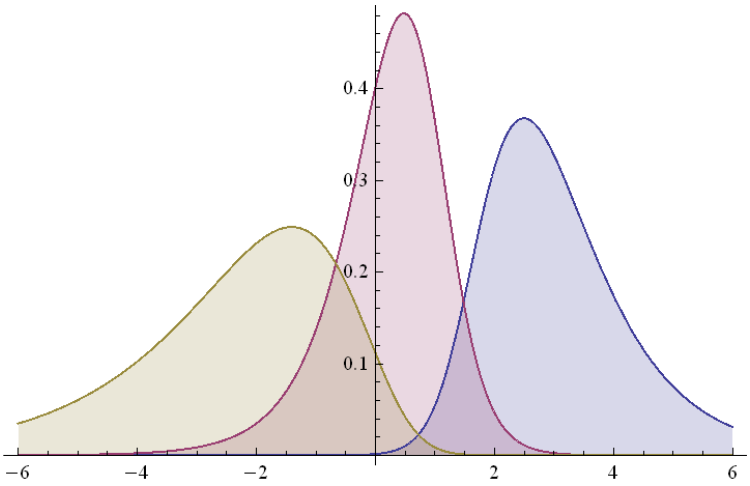

Figure 7. Johnson SU theoretical densities

Let's define the following dependencies for the stochastic variables of our model:

$$\tilde{\mu}_t \sim JohnsonSU(\gamma_\mu, \delta_\mu, \lambda_\mu, \xi_\mu) \quad (28)$$

$$\tilde{\Gamma} \sim JohnsonSU(\gamma_\Gamma, \delta_\Gamma, \lambda_\Gamma, \xi_\Gamma) \quad (29)$$

$$\tilde{v}_t \sim JohnsonSU(\gamma_v, \delta_v, \lambda_v, \xi_v) \quad (30)$$

The parametrisation of these distributions are presented in the following table:

Table 3 Parametrisation of the Johnson distribution

Parameter	Value
γ	0.0
δ	1.3
λ	0.35
ξ	0.0

The remaining variables in equation (26) are specified in accordance with the results derived from the application of the deterministic model.

We conduct k=2004 with the model as specified. The results for the banks are presented in Table 4. Due to similar assumptions for the future development of the banks and identical specification of the random process the statistics are very similar. Applying distinct forecasts for the different banks will yield significantly differently results.

Table 4. Statistics of change of value of equity capital from period t_0 to period t_1

Parameter	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5
Mean	10.0%	11.0%	9.7%	10.1%	11.3%
Median	6.5%	7.0%	7.1%	6.3%	6.7%
Standard Deviation	35.0%	36.6%	36.5%	36.2%	35.9%
Sample Variance	12.3%	13.4%	13.3%	13.1%	12.9%
Kurtosis	158.3%	442.8%	325.3%	143.4%	194.3%
Skewness	66.1%	112.5%	90.8%	74.3%	82.5%
Range	-57%	-191%	-197%	-53%	-111%
Minimum	-131.1%	-133.3%	-95.5%	-121.8%	-121.8%
Maximum	187.9%	324.5%	292.1%	174.7%	232.8%
Count	2,004	2,004	2,004	2,004	2,004
Confidence Level	1.53%	1.60%	1.60%	1.58%	1.57%
Confidence level(95.0%)	10.0%	11.0%	9.7%	10.1%	11.3%

The objectives of our study shy away from attempts to qualify and discuss them from economic point of view. The general conclusion, which confirms our expectations is that the model behaves in a stable fashion and produces meaningful results that make common sense and can be further calibrated and adjusted to reflect the particular cases and circumstances of any banking financial institution. The dispersion of value and return can be modelled by assuming differing beginning values for the deterministic variables in equation (26) and varying specification of the Johnson SU distribution in the equations (28)…(29). In order to form an intuitive view the results for Bank 5 are presented in Figure 8.

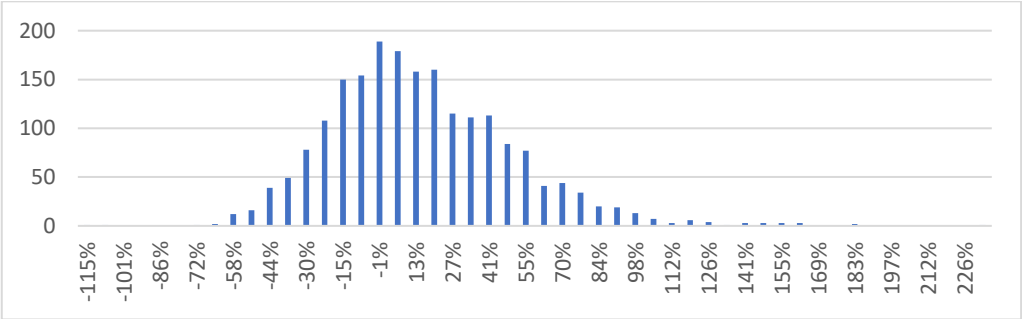

Figure 8. Resulting distribution of equity value change from t0 to t1 for Bank 5

7. Conclusion

We have constructed a model and devised an algorithm for detailed deterministic and reduced stochastic modelling of a bank from the point of view of an outside observer. Both models which are effectively two stages of a single integrated approach, capture and reflect the key significant factors that determine value. We do not claim that the resulting and applied integrated model is calibrated and based on reasonably justified assumptions for the future. The latter has not been our goal and we leave it for the practitioner to utilise the findings as they view fit and load the model with their own estimates. We

have used the five systemically important banks as of the end of 2016 merely as a test ground for the devised model, to check its behaviour and determine whether it satisfies common sense. When further developed and refined the model can be used for stress testing a bank, by applying various stochastic processes and parametrisations. A lot of work remains unfinished. The general idea is that the model is applied and calibrated over a large enough sample of financial institutions. The larger number of time series and cross-sectional momentary snapshots will allow for meaningful assumptions, stochastic processes and parameters to be defined to produce satisfactory results as to the actual dynamics of interest rates and the other significant macroeconomic indicators. The work on the model and its application will continue in the direction detailing and attaining accuracy in its ability to reflect reality. Further research will aim at properly specifying extreme value models for capturing the excessive losses, that are exactly what stress testing procedures are designed for. A conclusion is made that stress-testing is not art available to few, but should be rigorous, objective and appropriately specified. All the results are compared against the backdrop of the Bulgarian recent experience.

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DO BUSINESS-FRIENDLY REFORMS BOOST GDP?

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Abstact

We exploit the time series variation in the World Bank's "distance to frontier" estimates of the ease of doing business project to assess the dynamic effects of this variable on real GDP.

The use of Panel Vector Auto regression techniques also allows us to identify shocks to the ease of doing business that are initially uncorrelated with GDP, thus dealing with the endogeneity problem that has affected thecross-sectional literature on this topic. In addition to this, we also use the actual score and not the rank in our analysis to exploit within and cross country variation for the given time period.Lastly, in order to extend the time period to have more meaningful analysis we also create a "Predicted Distance to Frontier Score" which is closely related to the original World Bank Distance to frontier score.

Our results are somewhat surprising. We report a robust finding that improvements to the ease of doing business have a temporary negative impact on GDP. We also find that this affect is majorly different when we split countries by income.

An extension of the paper is also to determine the effects of a better doing business score on the inequality levels (using the Gini coeffcient)within a country using similar techniques.

Keywords: GDP, Ease of Doing Business, Panel Vector Auto Regression, Inequality

EFFECTS OF INDUSTRY 4.0 ON FIRMS ECOMONIC, MANAGERIAL AND PRODUCTIVITY DEVELOPMENT

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Abstract

Industry 4.0 has been on the agenda of the manufacturer, researchers, academicians, economy policy makers, the manager and owners of huge firms across the World in recent years. The term that was firstly presented at the Hanover fair in 2011 as a project of high-tech industry of Germany. Generally, It implies 4th phase of the Industrial Revolution. This paper seeks to analyze the topic in the context of the harbingers of this stage of industrialization such as cyber- physical production systems(CPSS), the internet of things(IoT), digitalizations, automation, 3D printing smart factories. Aforementioned high tech systems pave the way for more effective coordination between all chains of production process, optimizing resources, prevention of possible errors during manufacturing, reducing downtimes, customer-focused output, flexible production. Apparently, this form of manufacturing has far-reaching impacts to convert operations not only within the factory and supply side but also intra-sector, inter sectors and in all the processes that the product reaches to the customer. This process, which radically transforms the format of production through the use of intelligent technologies embedded in the production process, on the other hand makes it necessary to use more qualified labor force in production. This paper investigates Industry 4.0 effects on firms economic and managerial applications. Also productivity and efficiency issues will captures seperately. The results and recommendations on case analysis were interpreted. It is hoped that the findings will lead to the manufacturing industry.
Key words: Industry 4.0, Economic Development, Managerial Development, Productivity Development

THE LBG MODEL OF THE SUSTAINABLE DEVELOPMENT IN ENTERPRISES

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Abstract

The Corporate Social Responsibility (CSR) is a challenge in pursuing the concept of sustainable development. In 2015 the UNO General Assembly adopted 17 Sustainable Development Goals (SDGs) for 2015-2020 (Agenda 2030). Sustainable development goals create opportunities and business opportunities as well become a necessity on the marketplace. CSR practices are now seen as one of the key elements in the SDG's performance and at the same time affecting the financial performance. At the same time, awareness and understanding of the extent to which companies' involvement in social and environmental activities is translated into profitability increases (Waddock & Graves, 1997). One of the global standards for measuring corporate investment and philanthropy is The London Benchmarking Group - The LBG model. The LBG model is the most widely used standard in the world for managing, measuring and reporting the effectiveness of community engagement. The LBG model was launched in 1994 in the UK as an initiative of large companies that wanted to organize and manage their social programs in an organized and mature way. It allows not only to measure the overall engagement of the company, but also to verify how long it affects the structure of the organization and its immediate surroundings. The LBG model is also a system for measuring social effectiveness and commitment, short-term and long-term benefits from a company's perspective and social benefits. (A Guidance Manual 2014)

The paper presented assess best practice in social investment in corporations from different sectors and countries (analysis from philanthropy through corporate social investment benefits business). In the context of global challenges and sustainable development, good social and environmental practices set significant and measurable goals for the future. The analysis of the LBG's international network and so provides the deepest set of benchmark based on data from the LBG Annual Reviews within years 2013-2015. This carried out analyze helps to better identify trends in community investment and see how the companies that lead the field are taking on new approaches and measurement processes. More than 50% of the LBG network comprises are located in Europe especially in UK. Among companies participated in LBG's annual benchmarking exercise making a total contribution of ingresses form from 2,6 till 3,6 billion of USD in 2015 (equivalent to an average contribution of 639USD for each employee). The LBG enables, and challenges, companies to establish how they effect change in the people and the organizations that they help, as well as the employees that support their programs. As a result, the culture is changing, with more companies assessing their programs to establish where and how they are having a genuine impact. Most of beneficiaries made positive changes in behavior and improved their well-being as well most of employees improved their job-related skills through involvement in the community. During the research time can observed that supported organizations raised their profile, and improved their services, are the most important achievements for the supported organizations .

The LBG model is a tool that allows accurate, and above all, comprehensive calculation of the value of an overall corporate social commitment. It is based on standardized rules and tools for measuring various forms of engagement (financial, material, volunteering, and management costs). It is a system for measuring the effectiveness of social engagement in the context of short-term and long-term benefits from an enterprise's point of view and the benefits to society. The LBG model can be recognized not only as an effective tool to measure a company's overall engagement, but also as a long-term viewer of the impact of this engagement on its own business and its immediate surroundings.

Key words: London Benchmarking Group – LBG, Effectiveness, Social commitment

SELECTION OF INDUSTRIAL INVESTMENT ALTERNATIVES USING AHP AND FUZZY TOPSIS

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Abstract

New investments in an industry may be influenced by many factors including government incentives, market conditions, and profit margins. Making a new investment decision depends on the decision maker's priorities and the criteria for selection. When there are many alternatives to select from, and many criteria to consider, making a selection may turn to be difficult problem. In this work, we consider three main and six sub-sectors for investment and perform multi-criteria selection with six criteria and by using Analytical Hierarchy Process (AHP) and Fuzzy Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. Our aim is to identify and evaluate alternative investment sectors in the mid-Anatolia region.

With the help of an investment consulting company operating in the region, three main sectors of investment are identified as manufacturing, service, and agriculture. Through literature survey and by getting expert opinion, selection criteria are determined as employment, exports, competitiveness, government incentives, profit margins and technology. In the first round of study, pairwise comparison of alternatives is performed with experts at a local corporation, an association for businessman, and the industry chamber and commodity exchange operating in the region. AHP analysis revealed that the best main sector is manufacturing, followed by service and agriculture. In the second round, six sub sectors of manufacturing are identified as agricultural machinery, automotive, iron and steel, chemical, plastic, and garment. Pairwise comparison of sub sectors are made by the same experts of the first round and using the same criteria for main sectors. Fuzzy TOPSIS method was used in the second round of study to avoid uncertainties in the determination of the sub-sectors. Results show that agricultural machinery industry is the best sub sector to invest in, followed by automotive, iron and steel, chemical, garment and plastic.

Keywords: Industrial Investment, Multi-Criteria Decision Making, Fuzzy Logic, AHP, Fuzzy TOPSIS

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ESTIMATION OF TURKISH IMPORTS USING TIME SERIES MINING AND PREDICTION QUALITY ANALYSIS

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Abstract

Data mining is the process by which statistical analysis techniques, genetic algorithm methods and artificial intelligence algorithms are used together and the confidential information in the data is extracted and the data is converted into usable information. The goal of data mining methods is to acquire information by analyzing a large number of data and to predict the future by using this information. In recent years, data mining has started to be used in many areas such as industry, health, finance. Time series mining is to try to predict the most likely unknown elements of the sequence based on a previously known time series. This method is one of the statistical analysis techniques frequently used in data mining.

In this study, time series mining algorithms were applied on the data set taken from Turkish Statistical Institute (TUIK) using WEKA program. In the study, annual import data between 1923-2013 and monthly import data between 2000-2013 were used. Using these data, future values are estimated and finally the quality of the estimation is analyzed.

The SMOreg algorithm in WEKA is used in the study. This algorithm performs regression by applying it on Support Vector Machines (SVM). The SMOreg algorithm basically uses methods known as Support Vector Machines. SVM can also classify new data that has not been observed during training as problem-free. This indicates the ability of the support vector machines to generalize. The generalization feature makes SVM a good alternative to other techniques (ANN, Decision Tree, etc.).

The study on the annual import data has been conducted on import data between 1923-2013. Estimated for 2011 and later years, and the actual import values are compared between the estimation result and the following years. The accuracy of 2011 forecast is %94.3. In the study on annual data, it was observed that the forecast quality decreased as the forecast interval expanded. The forecast accuracy rate for 2012 is 91.5%. When the predicted values are examined, it is observed that the predicted quality decreases as the predicted year distance increases. A value such as MAPE 13% does not seem to be a reasonable value. When the negative value calculated for the average line is examined, we can see that the predictions are higher than the actual value.

Monthly import data between 2000-2013 was used in the study on monthly import data. The year 2013 data was used as test data. The actual import values are compared with the estimation result. The accuracy of 2011 forecast is %93. According to the MAPE criterion, it is possible to have information about the predicted correctness and the MAPE is 7.0%, which is a reasonable value for estimation. Contrary to the annual estimate, the average error in the monthly import forecast is positive. This may lead us to believe that the estimates yielded lower results than the actual value and no bias was observed.The amount of data per month is more than the amount of data per year, so the estimate is better.

Key Words: Support Vector Machines, Time Series, Forecasting, Imports

ZAMAN SERİLERİ MADENCİLİĞİ KULLANILARAK TÜRKİYE AYLIK VE YILLIK İTHALAT ARTIŞI TAHMİNİ VE TAHMİN KALİTE ANALİZİ

Özet

Veri Madenciliği, istatistiksel analiz tekniklerinin, genetik algoritma yöntemlerinin ve yapay zekâ algoritmalarının bir arada kullanılarak veri içerisindeki gizli bilgilerin açığa çıkarılması ve verinin kullanılabilir bilgiye dönüştürülmesi sürecidir. Veri madenciliği yöntemlerinin hedefi, çok sayıda verinin analiz edilmesiyle bir bilgi elde etmek ve bu bilgiyi kullanarak gelecek hakkında tahminde bulunmaktır. Son yıllarda veri madenciliği endüstri, sağlık, finans gibi birçok alanda kullanılmaya başlanmıştır. Zaman serileri madenciliği, önceden bilinen bir zaman dizisi temel alınarak dizinin henüz değeri bilinmeyen elemanlarını en olası bir şekilde tahmin etmeye çalışmaktır. Bu yöntem, veri madenciliğinde sıklıkla kullanılan istatistiksel analiz tekniklerinden birisidir.

Bu çalışmada WEKA programı ile Türkiye İstatistik Kurumundan (TUIK) alınan veri seti üzerinde zaman serileri madenciliği algoritmaları uygulanmıştır. 1923-2013 yılları arasındaki yıllık ve 2000-2013 yılları arasındaki aylık ithalat verileri kullanılarak daha sonraki yıllar için tahmin ve tahmin kalitesi analizi yapılmıştır.

Çalışmada WEKA içerisinde bulunan SMOreg algoritması kullanılmıştır. Bu algoritma, Destek Vektör Makineleri (DVM) üzerinde uygulayarak regresyonu gerçekleştirir. SMOreg algoritması temel olarak destek vektör makineleri olarak bilinen yöntemleri kullanır. DVM'ler, eğitim esnasında gözlenmemiş yeni verileri de sorunsuz olarak sınıflandırabilmektedir. Bu durum destek vektör makinelerinin genelleştirebilme yeteneğini göstermektedir. Genelleştirebilme özelliği DVM'yi diğer tekniklere göre (YSA, karar ağacı vs.) iyi bir alternatif yapmaktadır.

Yıllık ithalat verileri üzerinde yapılan çalışmada 1923-2013 yılları arasındaki ithalat verileri üzerinde çalışılmış, 2011 ve daha sonraki yıllar için tahminde bulunulmuş ve tahmin sonucu ile sonraki yıllar gerçek ithalat değerleri karşılaştırılmıştır. 2011 yılı tahmininin %94.3 oranında doğru olduğu görülmektedir. Yıllık veriler üzerinde yapılan çalışmada tahmin aralığı genişledikçe tahmin kalitesinin düştüğü gözlemlenmiştir. 2012 yılı tahminimiz %91.5 oranında doğrudur Bulunan tahmin değerleri incelendiğinde, tahmin edilecek yıl uzaklığı arttıkça tahminin kalitesinin düştüğü gözlemlenmektedir. MAPE %13 gibi bir değer makul bir değer gibi görünmemektedir. Ortalama hatada hesaplanan negatif değere bakıldığında, tahminlerin gerçekleşen değere göre daha yüksek kaldığını görebiliriz.

Aylık ithalat verileri üzerinde yapılan çalışmada 2000-2013 yılları arasındaki aylık ithalat verileri kullanışmıştır. 2013 yılı verileri test verisi olarak kullanılmış olup 2013 yılına ait aylık ithalat tahmininde bulunulmuştur. Tahmin sonucu ile sonraki yıllar gerçek ithalat değerleri karşılaştırılmıştır. 2013 yılı tahmininin %93 oranında doğru olduğu görülmektedir. MAPE kriterine göre tahminin doğruluğu hakkında bilgi sahibi olunabilmektedir ve MAPE %7,0 olup tahminleme için makul bir değerdir. Yıllık tahminin aksine aylık ithalat tahmininde görülen ortalama hata değeri pozitiftir. Bu durum, tahminlerin gerçekleşen değere göre daha düşük sonuçlar verdiğini ve bir yanlılık gözlemlenmediği kanısına varabiliriz. Aylık veri miktarı yıllık veri miktarına göre daha çok olması tahminin daha kaliteli olmasını sağlamıştır.

Anahtar Kelimeler: Destek Vektör Makineleri, Zaman Serisi, Tahminleme, İthalat

THE INFLUENCES OF EXCHANGE RATE CHANGES ON TURKEY'S TRADE WITH THE EUROPEAN UNION

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Abstract

This paper provides new empirical evidence on the determinants of Turkey's trade balance in its trade with the European Union (EU) countries focusing on the impacts of the changes in the real effective exchange rates. In the study where domestic and foreign income variables proxied by the industrial production indices are also included in the model, using the monthly time-series data of the post-custom union period, and following the autoregressive distributed lag (ARDL) bounds testing approach to the cointegration, export and import functions of Turkey are estimated.

As theoretically expected, estimation results reveal that Turkey's import demand is positively associated with the currency appreciation and domestic income growth which tends to increase the import. On Turkey's export function estimated, the finding that there is no significant contribution of Turkish lira's deprecation to Turkey's EU export points to possible adverse effects of high import content of Turkey's export.

Overall results indicate that the domestic and foreign income levels, exchange rates, and import contents of export are among the factors determining the Turkey's trade balance with EU. Since the exchange rate adjustments are not seen sufficient, and sometimes they may have some adverse effects, the integrated trade policy actions consistent with the exchange rate changes are required in order to reduce the persistent trade deficits of Turkey.

Keywords: Exchange rate, trade balance, ARDL, European Union, Turkey.

DÖVİZ KURU DEĞİŞMELERİNİN TÜRKİYE'NİN AVRUPA BİRLİĞİ TİCARETİ ÜZERİNE ETKİLERİ[1]

Özet

Bu çalışma, reel efektif döviz kuru değişmelerinin etkilerine odaklanarak, Türkiye'nin Avrupa Birliği (AB) ülkeleri olan ticaretinde dış ticaret dengesinin belirleyicilerine ilişkin yeni ampirik bulgular sunmaktadır. Sanayi üretim endeksleri ile temsil edilen yurtiçi ve yurtdışı gelir değişkenlerinin de modele eklendiği çalışmada gümrük birliği sonrası döneme ait aylık zaman serileri kullanılarak ve gecikmesi dağıtılmış otoregresif sınır testi yaklaşımı prosedürü izlenerek Türkiye'nin ihracat ve ithalat fonksiyonları tahmin edilmektedir.

[1] Bu çalışma, Çukurova Üniversitesi BAP Birimi SBA-2017-8206 numaralı proje tarafından desteklenmiştir.

Tahmin sonuçları, teorik beklentilerle de uyumlu olarak, Türkiye'nin ithalat talebinin Türk Lirası (TL)'nın reel olarak değer kazanmasıyla ve yurtiçi gelir değişmeleriyle pozitif ilişkide olduğunu ortaya koymaktadır. Tahmin edilen ihracat fonksiyonunda TL'nin değerindeki değişmelerin Türkiye'nin AB'ye ihracatı üzerinde anlamlı bir etkisinin olmaması, Türkiye'nin ihraç ürünlerinin ithal içeriğinin yüksek olmasından kaynaklanan olası ters etkilere işaret etmektedir.

Genel sonuçlar, Türkiye'nin AB ile olan ticaret dengesinde yurtiçi ve yurtdışı gelir düzeylerinin, reel döviz kurunun ve ihracatın ithal içeriğinin belirleyici faktörler arasında olduğuna işaret etmektedir. Döviz kuru ayarlanmalarının yetersiz olması ve bazen ters etkilerinin ortaya çıkması nedeniyle, süreklilik gösteren Türkiye'nin ticaret açıklarının azaltılması için döviz kuru değişmeleri ile uyumlu bütünleşik ticaret politikası uygulamalarına ihtiyaç duyulmaktadır.

Anahtar Kelimeler: Döviz kuru, Ticaret dengesi, ARDL, Avrupa Birliği, Türkiye.

1. Giriş

Bretton Woods sisteminin 1971'de çöküşünün ardından birçok ülkenin esnek (dalgalı) döviz kuru rejimine geçmesiyle birlikte, ulusal paraların yabancı ülke paraları karşısındaki değerleri (nominal döviz kurları) döviz piyasasındaki arz ve talep koşulları tarafından belirlenmeye başlanmıştır. Bu rejimle birlikte ülkeler her ne kadar ulusal paralarının değerinin piyasa koşulları tarafından belirlenmesine müsaade etse de, bu sistem genellikle Merkez Bankaları (MB)'nın belirli sınırlar dahilinde döviz kuruna müdahalede bulunduğu yönetimli dalgalı kur rejimi şeklinde uygulanmıştır. Türkiye de 1980'li yıllarla birlikte yönetimli dalgalı kur rejimine geçmiş ve ulusal parasının değeri piyasa koşulları tarafından belirlenmeye başlanmıştır. Döviz kurlarının piyasa koşulları tarafından belirlenmesinin ardından herhangi bir içsel ya da dışsal şok karşısında iniş ve çıkışlar sergileyen döviz kurlarının (özellikle de döviz kuru oynaklıklarının) dış ticaret dengesi başta olmak üzere çeşitli makroekonomik büyüklükler üzerindeki etkileri ve bu bağlamda döviz kurunun potansiyel belirleyicileri üzerine tartışmalar yoğunlaşmıştır. Bu tartışmalar, döviz kuru değişimlerinin dış ticaret dengesi üzerine etkilerine ilişkin geniş bir ampirik literatür oluşturmuştur.

Dış ticaret modellerinde ihracat, yurtdışı gelir ve göreli fiyatlar (reel döviz kuru)'ın bir fonksiyonuyken ithalat, yurtiçi gelir ve göreli fiyatlar (reel döviz kuru)'ın bir fonksiyonu olarak modellenmektedir. Buna göre, reel döviz kuru (RDK)'ndaki değişimlerin dış ticaret dengesi üzerine etkilerine ilişkin teorik beklentiler, dolaylı kotasyon yöntemi çerçevesinde, RDK artışlarının (azalışlarının) ülkenin ihraç ürünlerinin fiyat rekabeti gücünü azaltması (artırması) ve ithalatın maliyetini düşürerek (yükselterek) ithalatı artırması (azaltması) dolayısıyla dış ticaret dengesini bozması (iyileştirmesi) yönündedir (Denaux ve Falks, 2013). Rekabetçi döviz kuru politikası uygulamalarına bağlı olarak dış fazlanın ve yüksek büyüme oranlarının elde edilebileceği düşüncesi, özellikle ihracata dayalı büyüme (İDB) strateji bağlamında düşük kur politikasıyla dış fazla ve yüksek büyüme oranları elde eden bazı Asya ekonomileri (Çin, Güney Kore, Malezya ve Tayland gibi) için yapılan ampirik çalışmalarda (Eichengreen, 2007) destek bulmuştur. Bu çalışmalarda rekabetçi döviz kurlarının özellikle sanayi sektöründe yatırımın ve ihracatın karlılığını artırarak uzun dönemde ekonominin genel verimlilik düzeyinde artışa yol açtığına vurgu yapılmaktadır. Rekabetçi döviz kurlarının ticaret dengesini iyileştireceği beklentisi dolayısıyla sabit döviz kuru sisteminin uygulandığı dönemlerde ülkelerin dönem dönem başvurdukları devalüasyon uygulamaları, iktisat literatüründe *"komşuyu zarara sokma (beggar thy neighboor)*" politikası adında yeni bir kavramın ortaya çıkmasına yol açmıştır. Bir ülkenin uyguladığı devalüasyonun diğer ülke(ler)in ticaret dengesini bozucu etkilerini ifade eden "*komşuyu zarara sokma*" politikası uygulamaları beraberinde misilleme hareketlerini (karşı devalüasyonlar, ithalat tarifeleri gibi koruyucu önlemler) de tetiklemektedir (Hussain ve Haque, 2014). Rekabetçi döviz kurlarının ticaret dengesinde iyileşmeye yol açacağı düşüncesine karşılık, özellikle Türkiye gibi ithal ara ve yatırım mallarının üretimdeki payının yüksek olduğu ülkelerin ulusal para biriminde görülen reel değer kayıplarının, ithal girdileri pahalılaştırarak dış ticaret dengesini bozması, enflasyonu tetikleyerek tüketicilerin satın alma gücünü düşürmesi, dış borçların ulusal para karşılığını artırarak borç yükünü artırması ve ticarete konu olmayan sektörlerde gerilemeye yol açması gibi ters etkilerin ortaya çıkabileceği ifade edilmektedir (Gala ve Rocha, 2009; Bayar ve Tokpunar, 2013; Nicita, 2013).

Geleneksel olarak yurtiçi ve yurtdışı gelir düzeyi ile RDK'nun dış ticaret dengesinin temel belirleyicileri olması dolayısıyla dış ticaret politikalarının etkinliği büyük ölçüde ihracat ve ithalat talep

fonksiyonlarının gelir ve fiyat esnekliklerinin anlamlılığına ve büyüklüğüne bağlıdır. Dış ticarette fiyat ve gelir esnekliklerinin önemi, *esneklik yaklaşımı* (elasticity approach) çerçevesinde incelenmektedir. Esneklik yaklaşımının temelinde ise Marshall-Lerner (ML) koşulu bulunmaktadır (Utkulu ve Seymen, 2004). Uluslararası iktisat teorisinde bir ülkenin ulusal parasının reel olarak değer kaybetmesinin (depreciation) dış ticaret dengesi üzerindeki uzun dönem etkileri ML koşulu tarafından tanımlanmaktadır. ML koşulu, ihracat ve ithalatın arz esnekliklerinin sonsuz olduğu varsayımı altında, bir ülkenin ulusal parasının değerindeki bir düşüşün ticaret dengesini iyileştirebilmesi için ihracat ve ithalat talebi fiyat esneklikleri toplamının (mutlak anlamda) 1'den büyük olması gerektiğini ifade etmektedir. Bu koşulun gerçekleşmemesi durumunda ulusal paradaki reel değer kayıpları ticaret dengesini iyileştirmeyecektir. ML koşulu, bir ülkenin ulusal parasının değerindeki düşüşe bağlı olarak ortaya çıkan *pozitif miktar etkisi* ve *negatif maliyet etkisi* ile açıklanabilir. Buna göre bir ülkenin ulusal parası diğer ülke paraları karşısında değer kaybettiğinde, bir yandan ithal mallarının ulusal para cinsinden fiyatı artarken, diğer yandan da ihraç mallarının yabancı para cinsinden fiyatı azalmaktadır. Bu fiyat değişimlerinden dolayı ihraç malları miktarındaki artışa ve ithal malları miktarındaki düşüşe bağlı olarak ticaret dengesinde görülen iyileşmeler *pozitif miktar etkisi* olarak adlandırılmaktadır. Buna karşılık, fiyat değişimlerinin ihraç mallarını eskisinden daha ucuz ve ithal mallarını daha pahalı bir hale getirerek ticaret dengesini bozması ise *negatif fiyat etkisi* olarak tanımlanmaktadır (Hussain ve Haque, 2014, s. 231).

Uluslararası iktisat teorisinde bir ülkenin ulusal parasının reel olarak değer kaybetmesinin dış ticaret dengesi üzerindeki kısa dönem etkileri ise Magee (1973) tarafından geliştirilen *J-eğrisi (J-curve)* etkisi altında incelenmektedir. Bir ülkenin ulusal parasının yabancı ülkelerin paraları karşısında değer kaybetmesi karşılığında söz konusu ülkenin ticaret dengesinin öncelikle bozulacağı ve ticaret dengesindeki iyileşmelerin zaman alacağı argümanı iktisat literatüründe *J-eğrisi* etkisi olarak adlandırılmaktadır (Yazici ve Islam, 2014). J-eğrisi etkisi, bir ülkenin ulusal parasındaki reel değer kaybının ardından ticaret dengesinde neden iyileşme görülmediğini açıklayan ML koşuluna dayanmaktadır. Ulusal paranın reel olarak değer kaybetmesinin ardından ithalatın daha pahalı ve ihracatın daha ucuz olması, buna karşılık ihracat ve ithalat miktarlarının hemen bu değişen koşullarına uyarlanamaması (ML koşulunun gerçekleşememesi) nedeniyle dış ticaret dengesi kısa dönemde kötüleşmektedir. Uzun dönemde ise miktar etkilerinin ortaya çıkacağı (ML koşulunun gerçekleşeceği) ve ticaret dengesinin iyileşeceği ifade edilmektedir (Halicioglu, 2008). 1973-1980 dönemi kapsamında Yunanistan, Hindistan, Kore ve Tayland için *J-eğrisi* etkisinin geçerliliğini sorgulayan Bahmani-Oskooee (1985), döviz kuru değişimlerine bağlı olarak nispi fiyatlarda görülen değişimler karşısında tüketici ve üretici davranışlarının bu değişimlere uyarlanmasının zaman aldığı ve dört ülke örneğinde de J-eğrisi etkisinin geçerli olduğu sonucuna varmıştır.

Tarihsel olarak Türkiye'nin dış ticaret dengesinde görülen gelişmelerde Avrupa Birliği (AB) ülkeleriyle yapılan ticaretin seyri büyük önem taşımaktadır. Bununla birlikte AB ülkeleri her ne kadar Türkiye'nin en önemli ticaret ortakları olmayı sürdürse de, Türkiye ve AB arasında imzalanan Gümrük Birliği (GB) anlaşması sonrasında Türkiye'nin dış ticaretinde AB'nin payının giderek azaldığı (1995'te AB'nin toplam ihracat ve ithalattaki payı sırasıyla %57,4 ve %50,5 iken, 2016'da bu oranlar yaklaşık %48 ve %40 olarak gerçekleşmiştir) gözlenmektedir. Bu istatistikler, GB sonrası dönemde RDK'nun Türkiye'nin AB ülkeleriyle olan ticaret dengesine ne yönde ve ne derece etkide bulunduğu sorusunun ampirik olarak araştırılması ihtiyacını doğurmaktadır. Bu motivasyondan hareketle, RDK değişmelerinin kısa ve uzun dönem etkilerine odaklanarak, Türkiye'nin AB ülkeleri ile olan ticaretinin belirleyicilerinin incelendiği bu çalışmanın geri kalan kısımları şu şekilde organize edilmiştir: Türkiye'deki ticaret gelişmelerinin değerlendirildiği ikinci bölümün ardından, üçüncü bölümde Türkiye özelinde bir ampirik literatür özeti sunulmaktadır. Veri seti, yöntem ve bulguların yer aldığı dördüncü bölümün ardından çalışmamız sonuç ve değerlendirmelerin aktarıldığı beşinci bölümle tamamlanmaktadır.

2. Türkiye'deki Dış Ticaret Gelişmelerine Genel Bir Bakış

Türkiye ekonomisinde radikal bir değişiklikle 24 Ocak 1980 kararları ile birlikte ithal ikameci sanayileşme stratejisinden İDB stratejisine geçiş yapılmıştır. IMF destekli istikrar ve yapısal uyum programlarını içeren 24 Ocak 1980 kararları temel olarak büyüme oranını artırmak, enflasyonu önlemek, dış finansman açığını kapatmak ve mal ve sermaye piyasalarında daha dışa dönük ve piyasa temelli bir

iktisadi yapı oluşturmak amacıyla alınan bir takım kararlardan oluşmaktadır. Bu kararlar çerçevesinde İDB stratejisini uygulamaya başlayan Türkiye'de, döviz kuru yönetimi ve ihracatı teşvik politikalarıyla ekonominin sürdürülebilir bir rekabet edebilirlik gücü kazanması uğraşı içerine girilmiştir. Bu dönemde dalgalı (yönetimli dalgalı) döviz kuru rejimine geçilmesi ve sermaye hareketlerinin serbestleştirilmesi, dünya ekonomisiyle bütünleşme yolunda atılmış önemli adımlardır. Sermaye hareketlerinin serbestleştirilmesindeki amaçlardan birisi de aşırı borçlanmadan dolayı ulusal paranın değerlenmesinin ihracat performansı üzerindeki olası olumsuz etkilerini azaltmaktır. Yine bu dönemde ücretleri baskı altında tutmaya dönük politikalarla ihracatta rekabet edebilirlik gücü kazanılması amaçlanmıştır (Kızılca, 2006). 1980'li yılların başından itibaren Türkiye, İDB stratejisi bağlamında AB ile ticaretinde ticareti kısıtlayıcı önlemleri büyük ölçüde azaltmıştır. 1996'da fiilen yürürlülüğe giren GB anlaşması ile de tarımsal ürünler dışında Türkiye ve AB ülkeleri arasındaki gümrük tarifeleri, miktar kısıtlamaları ve ticareti kısıtlayıcı diğer önlemler kaldırılmış ve Türkiye, üçüncü ülkelerden yaptığı ithalatta AB'nin ortak gümrük tarifesini uygulamaya başlamıştır. GB anlaşmasıyla özellikle Türkiye-AB ticaretinde teknik engellerin ortadan kaldırılması amaçlanmıştır. Bu bağlamda Türkiye, standartlaştırma ve akreditasyon gibi parametreler bakımından AB'nin ortak müktesebatını benimsemeyi kabul etmiş; fikri ve sanayi mülkiyet hakları, rekabet kuralları, devlet yardımı ve idari işbirliği gibi ekonomik çevreyle ilgili kural ve düzenlemeleri de AB ile uyumlaştırmayı planlamıştır (Antonucci ve Manzocchi, 2006; Neyaptı vd., 2007).

Türkiye'de 1980 sonrası dönemde izlenen ticaret politikalarının toplam mal ve hizmet ihracatını önemli ölçüde artırdığı gözükmektedir. 1980-1990 dönemde toplam mal ve hizmet ihracatı yıllık ortalama % 17.2 artarken, imalat sanayi ihracatı yıllık ortalama % 26.2 artmıştır. Türkiye ihracatı büyüme oranının dünya ihracatı büyüme oranından daha hızlı olduğu bu dönemde Türkiye, dünya ihracatı içerisindeki payını da artırmıştır. İhracat 1980'deki 2,9 milyar dolar seviyesinden 1990'da 13,4 milyar dolar seviyesine yükselmiştir. Bu dönemde ihraç ürünlerinin bileşimi de imalat sanayi ürünleri lehine değişmiştir. İhracat artışının başlıca tetikleyicisi olan imalat sanayi sektöründe özellikle tekstil, giyim ve demir-çelik endüstrileri önemli rol oynamışlardır. 1980'lerden sonra ihracatta yaşanan bu gelişmelerin yanı sıra ithalatta da önemli değişiklikler gözlenmiştir. Nominal tarife oranlarının önemli ölçüde azaltılması, miktar kısıtlamalarının kaldırılması ve ithalat üzerindeki bürokratik kontrollerin gevşetilmesi uygulamaları ithalatta artışı beraberinde getirmiştir (Utkulu ve Seymen, 2004).

3. Veri Seti, Yöntem ve Bulgular

Çalışmanın bu bölümünde RDK değişmelerinin etkilerine odaklanarak, Türkiye'nin AB ülkeleri ile olan ticaretinde dış ticaret dengesinin belirleyicileri analiz edilmektedir. Bu bağlamda, Türkiye ve AB (28)'ne ait 1997M1-2016M12 dönemi (T=240) aylık verileri kullanılarak Türkiye'nin AB ülkeleri ile olan ihracat ve ithalat talep fonksiyonları tahmin edilmektedir. Çalışma dönemi olarak Türkiye ve AB arasında imzalanan GB anlaşmasının fiilen yürürlüğe girdiği 1996 sonrası dönem dikate alınmıştır. Aylık zaman serileri ile çalışmak için yurtiçi ve yurtdışı gelir değişkenlerini temsilen yurtiçi ve yurtdışı toplam sanayi üretimi endeksi değişkenleri kullanılmıştır. Yapılan çalışmalarda bu iki değişkenin sıklıkla birbiri yerine kullanıldığı görülmektedir (bkz. Vergil, 2002; Halicioglu, 2008; Bal ve Demiral, 2012). Türkiye ve AB arasındaki ticaret dengesinin belirleyicilerine ilişkin tahmin edilecek ihracat ve ithalat talep fonksiyonları sırasıyla şu şekildedir:

$$EXP = f\ (Y_f, REER) \quad (1)$$

$$IMP = f\ (Y_d, REER) \quad (2)$$

Denklem 1'de yer alan EXP Türkiye'nin AB ülkelerine toplam mal ve hizmet ihracatını, Y_f yurtiçi geliri temsilen modele dahil edilen yurtiçi sanayi üretim endeksini ifade etmektedir. Denklem 2'de yer alan IMP Türkiye'nin AB ülkelerinden toplam mal ve hizmet ithalatını, Yd yurtdışı geliri temsilen AB ülkelerinin ortalama sanayi üretim endeksini göstermektedir. Denklem 1 ve 2'de yer alan REER değişkeni ise göreli fiyatların bir göstergesi olarak reel efektif döviz kurunu simgelemektedir. Buradan hareketle çalışmada tahmin edilecek regresyon modelleri sırasıyla şu şekildedir:

$$EXP_t = \alpha_0 + \beta_1 Y_{f_t} + \beta_2 REER_t + u_t \quad (3)$$

$$IMP_t = \mu_0 + \beta_3 Y_{d_t} + \beta_4 REER_t + \varepsilon_t \quad (4)$$

Denklem 3 ve 4'te yer alan *t* yılı, α_0 ve μ_0 sabit terimleri ve u_t *ile* ε_t hata terimlerini göstermektedir. Teorik beklentilere göre Y_d ve Y_f'nin her ikisinin de ihracat ve ithalatı artırması (β_1, β_3 >0), beklenmektedir. Yurtiçi gelir düzeyindeki artışın (düşüşün) ithalat talebini artırması (düşürmesi) dolayısıyla ticaret dengesini bozucu (iyileştirici), yurtdışı gelir düzeyindeki artışın (düşüşün) ihracat talebini artırması (düşürmesi) dolayısıyla ticaret dengesini iyileştirici (bozucu) etkileri olasıdır. Bununla birlikte yurtiçi gelir düzeyindeki artışların ithal ikamesi malların üretimindeki artıştan kaynaklanması durumunda, yurtiçi gelir artışlarının ticaret dengesini iyileştirici etkide bulunması beklenmektedir. Aynı şekilde yurtdışı gelir düzeyindeki artışlar da ithal ikamesi malların üretimindeki artışlardan kaynaklı ise yurtdışı gelir artışlarının ticaret dengesini bozucu etkileri muhtemeldir. Dolayısıyla yurtiçi ve yurtdışı gelir düzeylerindeki değişimlerin ticaret dengesi üzerindeki etkileri, üretim artışlarının gerçekleştiği sektörlere göre farklılık gösterebilmektedir (Yazici ve Islam, 2014).

Denklem 3 ve 4'te belirtilen ekonometrik modellerin tahmin edilmesinden önce modelde yer alan tüm serilere ilişkin Augmented Dickey-Fuller (ADF) ve Phillips-Perron (PP) durağanlık testleri uygulanmış ve sonuçlar Tablo 1'de sunulmuştur.

Tablo 1. Birim Kök Testleri

	ADF				**PP**			
	Düzeyde		**1. Fark**		**Düzeyde**		**1. Fark**	
Değişken	***Test ist.***	***p***	***Test ist.***	***p***	***Test ist.***	***p***	***Test ist.***	***p***
EXP	-1,534[3]	0,514	-9,482[2]*	0,000	-1,332[7]	0,615	-9,775[4]*	0,000
IMP	-1,347[3]	0,607	-8,687[2]*	0,000	-1,058[2]	0,733	-23,08[6]*	0,000
Y_d	-0,721[1]	0,838	-20,09[0]*	0,000	-0,627[17]	0,861	-19,97[8]*	0,000
Y_f	-2,523[3]	0,111	-8,092[2]*	0,000	-2,276[43]	0,181	-26,25[0]*	0,000
REER	-3,206[1]**	0,021	-	-	-3,034[4]**	0,033	-	-

Not: *,** sırasıyla istatistiklerin % 1 ve % 5 düzeyinde anlamlı olduğunu göstermektedir.

Tablo 1'de gösterilen sonuçlar, seviyede durağan olan REER dışında modelde yer alan diğer değişkenlerin hem ADF hem de PP testlerine göre seviyede birim kök içerdiğine işaret etmektedir. Değişkenlerin birinci farklarının alınması durumunda ise tüm serilerin durağan hale geldikleri görülmüştür. İncelenen her iki model ile ilgili olarak otokorelasyon ve değişen varyans sorunu olmadığı tespit edilmiştir.Farklı düzeyde durağan olduğu sonucuna varılan değişkenler arasındaki uzun dönem ilişkisi, yeni bir eş bütünleşme yöntemi olarak Pesaran vd. (2001) tarafından geliştirilen gecikmesi dağıtılmış kendinden bağlanımlı sınır testi yaklaşımı (ARDL) prosedürü izlenerek analiz edilmiştir. ARDL tekniği diğer eş bütünleşme teknikleriyle karşılaştırıldığında bazı üstünlüklere sahiptir (Halıcıoğlu, 2004): İlk olarak, uzun dönem parametre katsayılarının tahmininde Engle-Granger yönteminde karşılaşılan zayıf test gücü ve içsellik problemi bu yöntemde ortadan kalkmaktadır. İkinci olarak kısa ve uzun dönem parametre katsayıları eş zamanlı olarak tahmin edilmektedir. Üçüncü olarak ARDL tekniğinde, modelde yer alan tüm değişkenlerin aynı dereceden entegre olması gibi bir sınırlama bulunmamaktadır. Bu durum, diğer eş-bütünleşme tekniklerinde karşılaşılan önemli bir kısıtı ortadan kaldırmaktadır. Bununla birlikte bu analiz tekniğinin serilerin aynı dereceden entegre olması gibi bir zorunluluk taşımaması, serilere ilişkin birim kök testlerinin yapılması ihtiyacını ortadan kaldırmamaktadır. Zira ARDL eş-bütünleşme testi için kullanılan F istatistiklerinin dağılımı, serilerin I(0) ya da I(1) düzeyinde entegre olduklarını varsaymaktadır. Bir diğer ifadeyle serilerin maksimum birinci dereceden durağan olmaları gerekmektedir (Yazici ve Islam, 2014, s. 346).

Sınır testi (bound testing) olarak da bilinen ARDL eş bütünleşme yaklaşımının ilk aşamasında uygulanan sınır testi prosedürü, Fisher (F) ya da Wald test istatistiklerine dayanmaktadır. Buna göre H_0 hipotezinin kabul edilmesi eş bütünleşme ilişkisi olmadığı şeklinde yorumlanırken, alternatif hipotez ise eş bütünleşme ilişkisi olduğu şeklinde yorumlanmaktadır. Bu prosedür için kullanılan F testi standart

bir dağılıma sahip değildir. Bu nedenle, Pesaran vd. (2001) tarafından iki kritik değer (alt ve üst) seti oluşturulmuştur. F istatistik değeri, üst kritik değeri aşması durumunda değişkenler arasında eş bütünleşme ilişkisi olduğu, alt kritik değerinden daha düşük olması durumunda eş bütünleşme ilişkisi olmadığı sonucuna varılmaktadır. F istatistik değeri, bu iki kritik değer arasında bulunması durumunda ise testin gücü yetersiz olmaktadır. İhracat ve ithalat modelleri için F testi sonuçları Tablo 2'de gösterilmektedir.

Tablo 2. Eş-bütünleşme İçin F Testi (Sınır Testi) Sonuçları

	F Testi	**k**	**Kritik değerler (%5)**		**Tanısal İstatistikler**	
			IO	**I1**		
İhracat Modeli	1,808	2	2,63	3,35	R^2=0,443 Düz. R^2 = 0,426	F ist. = 26,03 F ist. p-değeri = 0,000
İthalat Modeli	4,959	2	2,63	3,35	R^2=0,413 Düz. R^2 = 0,384	F ist. = 14,13 F ist. p-değeri = 0,000

F testi sonuçları ihracat modeli için eş-bütünleşme ilişkisinin olmadığını gösterirken, ithalat modeli için uzun dönem ilişkinin varlığını doğrulamaktadır. İhracat ve ithalat modellerinin ARDL prosedürü doğrultusunda tahmin sonuçları Tablo 3'te sunulmuştur.

Tablo 3. ARDL Modeli Tahmin Sonuçları: İhracat ve İthalat Talep Fonksiyonlarına İlişkin Uzun Dönem Katsayılar

İhracat Modeli ARDL (3,2,0)	Değişkenler	Katsayı	Std. Hata	t_istatistiği	P**
	C	2,007	2,733	0,734	0,463
	Yf	3,839	1,344	2,855*	0,005
	REER	0,206	1,429	0,144	0,885
İthalat Modeli ARDL (3,4,2)	**C**	**7,266**	**0,571**	**12,713***	**0,000**
	Yd	**1,269**	**0,277**	**4,575***	**0,000**
	REER	**1,489**	**0,569**	**2,614***	**0,009**

Not: * istatistiklerin % 1 düzeyinde anlamlı olduğunu göstermektedir. Model seçiminde Akaike Bilgi Kriteri (AIC) baz alınmıştır.

İhracat ve ithalat modellerinin tahmini sonucunda elde edilen uzun dönem parametre katsayıları göz önüne alındığında, ihracat ve ithalat fonksiyonları sırasıyla şu şekilde gösterilebilir:

$$EXP_t = 2{,}001 + 3{,}839 Y_{f_t} + 0{,}206 REER_t + u_t \quad (5)$$

$$IMP_t = 7{,}266 + 1{,}269 Y_{d_t} + 1{,}489 REER_t + \varepsilon_t \quad (6)$$

Denklem 5'de gösterilen ihracat modelinde yurtiçi milli gelir değişkeninin katsayısı istatistiki olarak anlamlı ve teorik beklentilerle uyumluyken, istatistiki olarak anlamlı olmayan REER katsayısının işareti teorik beklentilerle de örtüşmemektedir. İhracat fonksiyonu için uygulanan sınır testi yaklaşımına göre, ihracat modelinde yer alan değişkenler arasında uzun dönemli ilişki tespit edilemediği için, RDK ve Y_f'in ihracat üzerindeki uzun dönem etkisi yorumlanamamaktadır. Dolayısıyla, nispi fiyatları gösteren ve ihracatı negatif yönde etkilemesi beklenen REER'deki değişimlerin Türkiye'nin AB ülkelerine yaptığı ihracat üzerinde anlamlı bir etkisi tespit edilememiştir. Denklem 6'da gösterilen ithalat modelinde Y_d ve REER değişkenlerinin tahmin edilen parametre katsayılarının işaretleri teorik beklentilerle uyumlu ve istatistiki olarak anlamlıdır. Buna göre Y_d'deki % 1'lik artış Türkiye'nin AB ülkelerinden yaptığı ithalatı % 1,269 (ithalatın gelir esnekliği) artırmaktadır. Yine nispi fiyatlarda görülen % 1'lik artışın (Türk Lirası'nın reel olarak değer kazanmasının) AB ülkelerinden yapılan ithalatı % 1,489 (ithalatın fiyat esnekliği) artırdığı sonucuna varılmıştır. İthalatın fiyat esnekliğinin gelir esnekliğinden büyük olması, Türkiye'nin AB'den yaptığı ithalatta nispi fiyat değişimlerinin yurtiçi gelir düzeyi değişimlerinden daha önemli olduğunu göstermektedir. Her ne kadar ihracatın fiyat esnekliği

istatistiki olarak anlamsız bulunsa da, ithalatın fiyat esnekliğinin 1'den büyük olması, Türkiye'nin AB ülkeleriyle ticaret dengesinde ML koşulunun gerçekleştiğinin bir göstergesidir.

ARDL yaklaşımı sonuçları, döviz kuru değişimlerinin Türkiye ve AB ülkeleri arasındaki ticaret dengesine ilişkin kısa dönemli (J-eğrisi) etkilerini de göstermektedir. Çalışmamızda REER'in tanımlanmasına göre REER artışı ile ulusal paranın değerlenmesi aynı anlamda kullanıldığı için, Türkiye ve AB ülkeleri arasındaki ticarette *J-eğrisi* etkilerinin geçerli olması için ihracat modelinde REER'in kısa dönem katsayısının pozitif ve uzun dönem katsayısının negatif; ithalat modelinde ise REER'in kısa dönem katsayısının negatif ve uzun dönem katsayısının pozitif işaretli olması gerekmektedir. İhracat ve ithalat modellerine ilişkin hata düzeltme modeli ve kısa dönem katsayı tahmin sonuçları sırasıyla Tablo 4 ve 5'te sunulmuştur.

Tablo 4. İhracat Denklemi Hata Düzeltme Modeli ve Kısa Dönem Katsayı Tahmini

Değişken	Katsayı	Std. Hata	t-istatistiği	*Olasılık (p)*
D(LNEXP(-1))	-0.671094	0.060023	-11.180687	0.0000
D(LNEXP(-2))	-0.153920	0.059778	-2.574858	0.0107
D(LNYf)	0.978417	0.208750	4.687031	0.0000
D(LNYf(-1))	1.077596	0.213708	5.042378	0.0000
D(LNREER)	0.026750	0.139534	0.191706	0.8481
ECM(-1)	-0.038717	0.014313	-2.705036	0.0073

Tablo 5. İthalat Denklemi Hata Düzeltme Modeli ve Kısa Dönem Katsayı Tahmini

Değişken	Katsayı	Std. Hata	t-istatistiği	*Olasılık (p)*
D(LNIMP(-1))	-0.576759	0.064173	-8.987599	0.0000
D(LNIMP(-2))	-0.281467	0.062349	-4.514375	0.0000
D(LNYd)	1.196811	0.174282	6.867088	0.0000
D(LNYd(-1))	0.750995	0.190937	3.933216	0.0001
D(LNYd(-2))	0.878109	0.186588	4.706134	0.0000
D(LNYd(-3))	0.474005	0.171580	2.762588	0.0062
D(LNREER)	0.427859	0.146704	2.916478	0.0039
D(LNREER(-1))	0.279928	0.154818	1.808111	0.0719
ECM(-1)	-0.103769	0.034932	-2.970637	0.0033

İhracat modelinde REER'in kısa dönem katsayısının pozitif işaretli ve istatistiki olarak anlamsız olduğu görülmüştür. İthalat modelinde ise istatistiki olarak anlamlı bulunan REER değişkeninin katsayısı pozitif işaretlidir. Bu sonuçlar Türkiye ve AB ülkeleri arasındaki ticaret gelişmelerinde döviz kuru değişimlerinin kısa dönemli etkileri bağlamında J-eğrisi etkisinin geçersiz olduğunu göstermektedir. İthalat modeli için -0,104 olarak bulunan hata düzeltme katsayısının istatistiki olarak anlamlı olduğu görülmüştür. Bu sonuç, kısa vadede meydana gelen bir dengesizliğin ileriki dönemlerde düzeleceğinin bir göstergesidir.

4. Sonuç

Bu çalışmada reel döviz kuru (RDK) değişmelerinin etkilerine odaklanarak, Türkiye'nin AB (28) ülkeleri ile olan ticaretinde dış ticaret dengesinin belirleyicileri incelenmektedir. Gümrük birliği sonrası döneme ait aylık zaman serileri kullanılarak ve gecikmesi dağıtılmış kendinden bağlanımlı sınır testi yaklaşımı (ARDL) prosedürü izlenerek tahmin edilen Türkiye'nin ihracat ve ithalat talep fonksiyonları sonuçlarını şu şekilde özetlemek mümkündür: Tahmin sonuçları, teorik beklentilerle de uyumlu olarak, Türkiye'nin ithalat talebinin Türk Lirası (TL)'nın reel olarak değer kazanmasıyla ve yurtiçi gelir değişmeleriyle pozitif ilişkide olduğunu ortaya koymaktadır. Tahmin edilen ihracat fonksiyonunda TL'nin değerindeki değişmelerin Türkiye'nin AB'ye ihracatı üzerinde anlamlı bir etkisinin olmaması, Türkiye'nin ihraç ürünlerinin ithal içeriğinin yüksek olmasından kaynaklanan olası ters etkilere işaret etmektedir. Her ne kadar ihracatın fiyat esnekliği istatistiki olarak anlamsız bulunsa da, ithalatın fiyat

esnekliğinin 1'den büyük olması, Türkiye'nin AB ülkeleriyle ticaret dengesinde ML koşulunun gerçekleştiğinin bir göstergesidir. RDK değişimlerinin ihracat üzerindeki kısa dönem etkilerinin anlamsız olması ve ithalat üzerinde istatistiki olarak anlamlı ve pozitif yönde etkide bulunması, Türkiye ve AB ülkeleri arasındaki ticaret gelişmelerinde döviz kuru değişimlerinin kısa dönemli etkileri bağlamında J-eğrisi etkisinin geçersiz olduğunu göstermektedir. Çalışmadan elde edilen genel sonuçlar, Türkiye'nin AB ile olan ticaret dengesinde yurtiçi ve yurtdışı gelir düzeylerinin, RDK'nun ve ihracatın ithal içeriğinin belirleyici faktörler arasında olduğuna işaret etmektedir. Döviz kuru ayarlamalarının yetersiz olması ve bazen ters etkilerinin ortaya çıkması nedeniyle, süreklilik gösteren Türkiye'nin ticaret açıklarının azaltılması için döviz kuru değişmeleri ile uyumlu bütünleşik ticaret politikası uygulamalarına ihtiyaç duyulmaktadır. Döviz kuru değişimlerinin ihracat üzerinde anlamlı bir etkisinin olmaması, Türkiye'nin AB ülkelerine ihracatını artırabilmesi için fiyat rekabeti dışında başka faktörlere önem vermesi gerektiğine işaret etmektedir. Bu doğrultuda AB ülkelerinin ithalat yapısı ve gelişim trendi dikkatli bir şekilde analiz edilmeli ve gelecekte ne tür ürünlere yöneliş olabileceği yakından takip edilmelidir. Bu bakımdan markalaşmak, standartlara uygun üretim yapmak, ürün çeşitlendirmesi ve ürün kalitesini artırıcı önlemler almak gibi fiyat dışı rekabeti geliştirecek politika uygulamalarına girişilmelidir.

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META ANALYSIS OF THE EFFECTS OF ACTIVE LABOR MARKET POLICIES APPLIED IN THE EUROPEAN UNION

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Abstract

The problem of unemployment, one of the most important problems of all developed and developing countries, has witnessed many applications in its solution. Since 1973 Active Labor Market Policies have started to be implemented by the Member States of the European Union in order to solve the problem of unemployment. In general Active Labor Market Policies will create new jobs, facilitate the search for jobs, and face opposition as politics that will increase the quality of workers and thus productivity and wages. The most commonly used headings of these policies are; job search assistance, training programs, private sector business support and public employment services. In Turkey, Active labour market policies, which have been implemented since 2002, have been put into practice in order to create new jobs in Turkey, to increase the qualifications and productivity of workers and to increase wages in accordance with the above-mentioned purposes. However, when countries are examined on a case by case basis, it is seen that different and unique active labor market policies are applied in view of the sector or demographic characteristics needed.

The evaluation of socio-economic development programs may require different methods depending on the nature of the program. When we look at the perspective of active Labor Market policies; whether or not the unemployed individual is able to get in or out of the job is an important evaluation criterion.

In this study, meta-analysis was carried out by evaluating the previous studies analyzing the effects of active labor market policies in European Union countries on the effects of job creation and wage increase. As a result of the analysis; the presence of both positive and negative effects has been identified, with differences in country and program applied segments. In general, it is clear that the positive effects of program implementations can be addressed, while the programs implemented under benefit-cost analysis need to be evaluated.

Key Words: Unemployment, Active Labor Market Policies, Meta Analysis, Impact Evaluation

AVRUPA BİRLİĞİNDE UYGULANAN AKTİF İŞGÜCÜ PİYASASI POLİTİKALARININ ETKİLERİNİN META ANALİZİ

Özet

Gelişmiş ve gelişmekte olan bütün ülkelerin en önemli problemlerinden biri olan işsizlik sorunu, çözümü konusunda pek çok uygulamaya tanıklık etmiştir. Avrupa Birliğine üye ülkeler tarafından işsizlik sorununun çözümü için 1973 yılından itibaren Aktif İşgücü Piyasası Politikaları uygulanmaya başlanmıştır. Aktif İşgücü Piyasası Politikaları genel anlamda yeni iş yaratacak, iş aramayı kolaylaştıracak, işçi niteliğini böylece de verimlilik ve ücretleri arttıracak politikalar olarak karşımıza çıkar. Bu politikaların yaygın olarak en fazla kullanılan başlıkları ise; iş arama yardımları eğitim programları, özel sektör iş destekleri ile kamu istihdam hizmetleri olarak karşımıza çıkmaktadır. Türkiye'de de 2002 yılından itibaren uygulanmaya başlanan Aktif işgücü piyasası politikaları ile yukarıda sayılan amaçlara uygun olarak Türkiye'de yeni iş yaratmak, işçilerin niteliklerini ve verimliliklerini arttırmak ve ücret artışı sağlayabilmek üzere uygulamaya koyulmuştur. Ancak ülkeler bazında incelendiğinde, ihtiyaç duyulan sektör veya demografik özelliklere istinaden farklı ve özgün aktif işgücü piyasası politikası uygulamaları da görülmektedir.

Uygulanan sosyo ekonomik kalkınma programlarının değerlendirilmesi, programın özelliğine göre farklı yöntemler gerektirebilir. Aktif İşgücü Piyasası politikalarının değerlendirilmesi perspektifinden baktığımızda ise; işsiz bireyin işe girip girmemesi veya çalışıyorsa ücret artışı sağlayıp sağlamaması önemli bir değerlendirme kriteri haline gelmektedir.

Bu çalışma ile de farklı programlar kapsamında, Avrupa Birliği Ülkelerinde uygulanan aktif işgücü piyasası politikalarının, iş sağlama ve ücret artışı konusundaki etkilerini analiz eden önceki çalışmaların değerlendirilmesi suretiyle meta analiz yapılmıştır. Yapılan analiz sonucunda; ülke ve program uygulanan kesimler açısından farklılıklar olmakla birlikte hem pozitif hem negatif etkilerin varlığı tespit edilmiştir. Genel olarak program uygulamalarının pozitif etkisinden söz edebilmekle beraber fayda-maliyet analizi çerçevesinde uygulanan programların değerlendirilmesi gerektiği açıktır.
Anahtar Sözcükler: İşsizlik, Aktif İşgücü Piyasası Politikaları, Meta Analiz, Etki değerlendirmesi

Giriş

1970'li yıllara kadar Avrupa'da genellikle düşük seviyelerde seyreden işsizlik, bu yıllardan sonra dünya konjonktüründeki gelişmelere koşut olarak önemli bir toplumsal problem olarak ekonomilerin gündemine gelmiştir.

1973 yılında İsveç istihdam bürosu şefi Gösta Rehn, işgücü piyasalarına işlerlik kazandırmak ve istihdamı arttırmak üzere Aktif İşgücü Piyasası Politikaları (A.İ.P.P.)nı uygulamaya başlamıştır (Martin, 2014).

Avrupa Birliği tarafından yapılan çalışmalar sonucunda 1989 yılında yayınlanan İşçilerin Temel Sosyal Hakları Avrupa Komisyonu Şartı belgesindeki işçi deklarasyonu ile işgücü piyasaları ile ilgili oluşturulan stratejilerin temelinde A.İ.P.P. larının olduğu görülmektedir (Addison & Siebert, 1999). Oluşturulan bu strateji ile; insan kaynağının geliştirilmesi için fonlar oluşturulması gerektiği, işyerinde kalite ve verimliliği geliştirecek tedbirlerin alınması, tam istihdamın sağlanması ve yeni iş yaratma potansiyelinin arttırılarak işgücü piyasasının kapsamının geliştirilmesi gerektiği belirtilmiştir (Franzese & Hays, 2006).

Türkiye'de de 2002 yılında İŞ-KUR tarafından başlatılan istihdam politikaları kapsamında, Avrupa İstihdam Stratejisine uygun olarak Aktif İşgücü Piyasası Politikalarını uygulanmaya başlamıştır (Eser & Terzi, 2008).

Avrupa Birliği ve OECD ülkelerinin tamamında uygulanan bu politikaların etkilerinin değerlendirildiği pek çok çalışma vardır. Bu analiz çalışması ile Avrupa Birliği ülkelerinde yapılan uygulamaların etkilerinin değerlendirildiği bir meta analiz çalışması yapılmıştır. Elde edilen bulgular paylaşılmadan önce Aktif İşgücü Piyasası Politika uygulamaları hakkında kısaca bilgi verilecektir.

1. Aktif İşgücü Piyasası Politikaları

Gelir seviyesi yüksek ülkelerin pek çoğu, uzun dönemli işsizlik sorunlarını çözmek üzere bütçelerinden önemli miktarlarda kaynağı aktif ve pasif politika karması için kullanmaktadırlar. Pasif politikalar genellikle karşılıksız bir transfer harcaması olduğundan aktif politikalarının etkinliği sürekli olarak arttırılma çabasındadır. Aktif politikaların uygulama alanı ise daha çok firma kapanması sebebiyle işsiz kalan, toplu olarak işten çıkarılan kişiler ile dezavantajlı kişilere yönelik olarak uygulanmaktadır (Dar, Gill, 1998).

Aktif İşgücü Piyasası Politikaları genel anlamda yeni iş yaratacak, iş aramayı kolaylaştıracak, işçi niteliğini böylece de verimlilik ve ücretleri arttıracak politikalar olarak karşımıza çıkar. Bengsston (2012) çalışmasında A.İ.P.P. lerin sosyal ve demokratik refah devletinin bir gereği olarak geliştiğini ileri sürmüştür. AİPP'lerin evrensel amacı; işgücü niteliğini arttırmak, işgücü arzını arttırmak ve işgücü piyasalarının işleyişini iyileştirmektir. Ancak farklı ülke uygulamalarında daha spesifik alanlarda, özellikle engelliler, gençler, eğitim almamış olanlar vb. dezavantajlı kişiler açısından farklı amaçlarla da AİPP'lerin uygulandığı görülmektedir. Örneğin bu programlar Günay Avrupa ve Anglosakson ülkelerinde sıkı istihdamı koruma yasaları ile birlikte uygulanırken, İskandinav ülkelerinde güvenceli esneklik politikaları benimsenerek uygulamalar yapılmıştır (Greve, 2012; Bengsston, 2012; Bergeman, Berg, 2006; Calmfors vd., 2001).

Aktif işgücü piyasası politikaları konusunda ülke uygulamalarına bakıldığında, engellilere, kadınlara, gençlere, eğitimsiz bireylere ve bunlara benzer dezavantajlı kesimlere yönelik yapılan özel

uygulamalar da dikkati çekmektedir. Genel uygulama açısından benzer programlar, dezavantajlı kesimler açısından pozitif ayrımcılık yapılarak, küçük değişiklik ve avantajlarla uygulandığı görülmektedir. Bu uygulamalardan bazıları, dezavantajlı kişilerin işgücü piyasalarına katılımını sağlamak amacı güderken, bazı uygulamaların sadece sosyal devletin bir gereği olarak sosyal adaleti sağlamaya yönelik uygulandığı görülmektedir. Bu tür uygulamalar aktif olarak tanımlanmasına rağmen, barındırdığı amaç açısından pasif işgücü piyasası politikası olarak görülebilir (Islam vd., 2001; Hogelund, Pederson, 2002).

Bununla beraber, genel kabul gören dört alanda A.İ.P.P. uygulamalarından bahsedeceğiz. Bu alanlar (Spevacek, 2009);

1. Özel işletmelere verilen, ücret ve istihdama ilişkin sübvansiyonlar ile ek istihdam sağlanması,
2. Kamu kesiminde ek istihdam yaratılması,
3. Eşleştirme, iş danışmanlığı ve iş arama yardımları,
4. Beceri geliştirecek eğitimler.

Ücret ve İstihdam Sübvansiyonları:

Belirli sektörler için getirilen uygulama ile, ilgili sektörde çalışan işletmelere, çalıştıracakları her ek işçi için, hükümet tarafından sağlanan sübvansiyonları içerir. Bu sübvansiyonlar, sigorta ödemelerinin hazine tarafından karşılanması, vergi indirimleri gibi uygulamaları içerir. Bu sübvansiyonlarla firma açısından işgücü maliyetleri düşürülerek, hem üretilen mal ve hizmetlerin fiyat artışları kontrol altına alınarak rekabet avantajı yaratılmakta, hem de firmalar açısından düşük maliyetle ek istihdam yaratılması amaçlanmaktadır.

Bu politika uygulamasında bazı dışlama etkilerinden de söz etmek gerekir. Örneğin firma söz konusu sübvansiyonlardan yararlanmak için mevcut çalışanlarını işten çıkarma eğiliminde olabilir. Yine sübvansiyondan yararlanamayan firmalar açısından maliyet artışları, bu firmaların işçi çıkarmasına veya üretim azalmasına sebep olabilir (Karabulut, 2007).

Kamu İstihdam Hizmetleri:

A.İ.P. kapsamında özellikle desteklenen sektörler açısından iş ve ücret imkanı sağlamak üzere kamuda işe alımlar yapılabilir. Burada temel amaç, iş bulabilecek niteliklere sahip olamayan kişilerin, belirli ve özellikle niteliksiz işler açısından, kamuda istihdam edilmesini sağlayarak işsizliğin azaltılması ve kişilere iş ve gelir sağlanarak talebin ve dolayısıyla üretimin arttırılmasıdır.

Uygulanan bu programlar ile geçici de olsa istihdam yaratılmasının yanı sıra, katılımcıların uzun süre çalışma hayatından koparak yaşanabilecek uzun dönemli olumsuz etkilerinde ortadan kaldırılması mümkün olmaktadır. Yine bu programların temel amaçlarından birisi olarak, dezavantajlı (engelli, eğitimsiz, yaşlı vb.) kişilere yönelik olarak uygulanan sosyal bir program olma özelliği taşımasıdır (Karabulut, 2007).

Eşleştirme ve İş Danışmanlığı Hizmetleri:

Hükümet tarafından kurulan istihdam büroları aracılığıyla, iş arama konusunda bilgi eksikliği olan kişiler ile işçi aramak konusunda bilgi eksikliği olan firmaların bir araya getirilerek (eşleştirilerek) istihdam sağlanması amaçlanmaktadır. Bu uygulama ile, iş uzmanları tarafından hem firmalara hem kişilere danışmanlık hizmeti verilerek, uygun işlere uygun işçilerin yerleştirilmesi yani iş ile işçinin eşleşmesi sağlanmaktadır.

İş uzmanları tarafından verilecek danışmanlık hizmeti ile işgücü piyasalarında oluşan asimetrik bilgi probleminin çözümüne de katkı sağlanacaktır. Çünkü; firmalar işe alacakları kişilerin nitelikleri hakkında tam bilgiye sahip olmak isterler, yine işçiler de işe girecekleri firmalar hakkında bilgi sahibi değildir. İşte iş uzmanları bu bilgi eksikliklerini giderecek uygun kurumsal yapılar oluşturabilirler. Böylelikle, iş uygun eleman bulma konusundaki maliyetler ile, iş arama maliyetleri minimuma indirilebilecektir (Yavuz, 2017).

Mesleki Eğitim Programları:

Üretim sektöründe ihtiyaç bulunan alanların tespit edilerek, bu alanlara uygun nitelikte eleman temin etme konusunda önemli bir politika uygulamasıdır. Burada sektörel incelemeler yapılarak firmaların ihtiyaç duyduğu nitelikler tespit edilir. Bu tespitlere istinaden mesleki eğitim programları düzenlenir. Bu programları başarı ile tamamlayan bireylerin hem iş bulmaları hem de etkin ve verimli çalışmaları sağlanmış olur. Yine firmalar açsısından değerlendirdiğimizde, firmalar ihtiyaç duyulan alanlarda daha kalifiye elemanlar ile üretim yapılmış olur.

Belirli niteliklerden (özellikle işgücü piyasalarının ihtiyaç duyduğu alanlarda) yoksun olma, uzun dönemli işsizliği en önemli sebeplerinden birisidir. Bu eksiklik aynı zamanda üretim piyasları açısından

da etkinlik kaybı anlamına gelmektedir. Kamunun sağlayacağı mesleki eğitim programları bu açıdan bakıldığında hem işgücü hem de üretim piyasaları açısından en faydalı program uygulamaları arasında yer almaktadır. Ancak bu eğitim programlarının amaçlarına ulaşabildiği konusunda tartışmalar mevcuttur (Kluve, 2014).

Mesleki becerilerin geliştirilmesi programı, Avrupa'da bütün hükümetler tarafından kullanılan ve en yüksek bütçelerin tahsis edildiği programlardır. Bu programlar işgücü piyasasında çalışan olsun işsiz olsun herkesin becerilerinin korunması ve geliştirilmesi amaçlanmaktadır. Bu programlar özellikle açık ekonomilerde uzun dönemli işsizliği engelleyecek önemli politika uygulamalarıdır (Blache, 2011).

2. Aktif İstihdam Politikalarının Etkinliğinin Değerlendirilmesi:

Genellikle uygulanan bir programın değerlendirilmesi için, programın özelliğine göre farklı yöntemler önerilir. Örneğin süreç değerlendirme, fayda-maliyet analizi, performans izleme, etki değerlendirmesi gibi yöntemler programın amaçlarına ve yapılan değerlendirmenin amaçlarına göre yapılan farklı uygulamalardır. A.İ.P.P. perspektifinden baktığımızda, politika uygulamalarının amaçları ve yapılacak değerlendirme çalışmasının amaçları göz önüne alındığında, bizim de bu çalışmada ki amacımız A.İ.P.P. uygulamalarının işsizliği azaltma veya istihdamı arttırma şeklinde ortaya çıkacak etkinliğinin değerlendirilmesidir (Tachizadeh, 2014; Forslund, Krueger, 2008).

Bu çalışma ile, Aktif İstihdam Politikası uygulamaları konusunda yapılan analizlerin, derlenmesi ile oluşturulmuş bir meta analiz yapılması amaçlanmıştır. Yapılacak analiz ile uygulanan politika araçlarından hangilerinin daha etkin sonuçlar verdiği konusu incelenmiştir. Bu amaçla öncelikle meta analiz konusunda kısa bir bilgilendirme yapılarak sonuçlar paylaşılacaktır.

3. Yöntem

Meta Analiz

Meta Analiz; belirli bir konuda birbirinden bağımsız olarak yapılmış çalışmaların sonuçlarının birleştirilerek yeni bir istatistiksel analiz yapılmasıdır. Meta analiz literatür taraması yöntemine istatistik yöntemlerinin eklenmesi ile ortaya çıkar. Meta analiz yapabilmek için öncelikle sistematik bir derleme yapılması gerekir. Bu derlemede hangi çalışmaların analize dahil edileceği, analizin amaçlarına uygun kriterlerle belirlenerek, sonuçları etkileyecek kapsamda olan çalışmaların analiz dışı bırakılması gerekmektedir (Tachizadeh, 2014).

Meta analiz çalışmalarına konu edilen bağımsız çalışmalarda, A.İ.P.P.'nın katılımcılarına, katılımcı olmayanlara kıyasla nasıl sonuçlar alındığı araştırılmıştır. Bu çalışmalarda genellikle yukarıda sayılan dört A.İ.P.P.'nin katılımcılarının istihdam durumları, yeniden istihdamları ve ücret seviyeleri üzerindeki etkileri analiz edilmektedir (Calmfors vd., 2014).

Bu çalışmada da ülke, Avrupa Birliği ülkelerinde uygulanan A.İ.P.P. ler için değerlendirme çalışmaları da bu ülkeleri kapsamaktadır. Analiz kapsamında incelenen çalışmalar tablo halinde verilmektedir.

4. Bulgular

Analiz çalışmasına dahil edilen 57 çalışmanın çoğunluğu 2000'li yıllardan sonra yapılan çalışmalardır. İncelenen çalışmalarda kısa dönem-uzun dönem, erkek-kadın, yaş grubu, özür grubu gibi farklı kriterlerde farklı sonuçlar elde edilmiştir. Çalışmaların bağımlı değişkenleri işsizlik ve ücretlerdir.

Tablo 1. Analiz kapsamında incelenen çalışmalar

ÇALIŞMA	PROGRAM-DÖNEM-ÖRNEKLEM	BAĞIMLI DEĞİŞKEN	SONUÇ
Alegre vd. 2017	İspanya-Katalan bölgesinde, 2009-2013 döneminde uygulanan mesleki eğitim programlarının etkileri	İstihdam	6-18 yaş grubu için pozitif, diğerleri sıfır veya negatif
Arellano, (2010)	2000-2001 yıllarında İspanya'da uygulanan mesleki eğitim programlarının etkileri	İşsizlik	Negatif, önemsiz, Kadınlara etkisi daha fazla
Benus, Rodrigez-Planas (2009)	1990'dan sonra Romanya'da uygulanan A.İ.P.P. larının etkileri	İstihdam	Pozitif etki, Kamu istihdam hizmetlerinde negatif etki
Bergeman, Pohlan, Uhlendorf, (2017)	1990-1999 yılları arasında Almanya'nın birleşmesinin ardından Doğu Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Kısa dönem Pozitif, Uzun dönem etkisiz
Blache, (2011)	Danimarka'da uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret seviyesi	Pozitif etki
Bocean (2007)	Romanya'da geçişten sonra, 2000-2005 döneminde uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Bonin, Rinne, (2014)	Serbest Piyasa Ekonomisine geçişden sonra A.İ.P.P. olarak uygulanan Beautiful Serbia programının etkileri	İstihdam Bireysel refah	Pozitif
Bonnal vd. (1997)	1986-1988 döneminde Fransa'da genç işsizlere yönelik olarak uygulanan eğitim programları	İstihdam	Düşük eğitim seviyelerinde etkisiz
Caliendo, vd. (2012)	2001-2008 yılları arasında Batı Almanya'da erkeklerin yararlandığı A.İ.P.P. lerin etkileri	İstihdam Küçük iş	Pozitif
Caliendo, Künn, (2012)	Almanya'da düşük nitelikli kadın işçiler üzerinde uygulanan A.İ.P.P. lerin uzun dönem etkileri	İstihdam Ücret	Pozitif
Calmfors, Forslund, Hemström, (2001)	1990'dan sonra İsveç'te uygulanan A.İ.P.P.'larının etkilerini inceleyen çalışmaların derlenmesi.	İstihdam Ücretler	İstihdam etkisi (+) Ücret etkisi belirsiz
Caliendo vd, (2006)	Almanya'da özellikle zor işlerde çalışan işçiler üzerine uygulanan A.İ.P.P. lerin etkileri	İstihdam	Etki yok
Carling, Richardson, (2001)	1995-1997 yılları arasında İsveç'te işsiz kalan yetişkinlerin katıldığı A.İ.P.P. sonrasında işsizlik süresindeki azalma ölçülmüş	İşsizlik süresi	İstihdam sübvansiyonları ve firma eğitimlerinin etkisi pozitif
Caroleo, Patsore, (2017)	İtalya'da genç işsizlere yönelik olarak uygulanan A.İ.P.P.lerin etkileri	İstihdam	Pozitif

Cocks, Bardoulat, (2000)	1989-1993 döneminde Belçika'da uygulanan meslek edindirme eğitimlerinin etkileri	İstihdam	Pozitif etki
Cockx vd. (1996)	1991-1992 yıllarında Belçika'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Crepon, Dejemeppe, Gurgand, (2005)	2001 yılından sonra Fransa'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif önemsiz
Dahl, Lorentzen, (2005)	Norveç'te 1995 yılında uygulanan A.İ.P.P. lerin (iş arama yardımı, eğitim programı) etkileri	İstihdam Ücret	İş arama yardımının istihdam etkisi yok Eğitimin istihdam etkisi pozitif. Ücret etkisi pozitif.
Dengler, (2013)	Almanya'da uygulanan A.İ.P.P. lerin katılımcılarına etkisi	İstihdam	Pozitif
Dorsett, vd. 2013	İngiltere'de, uzun süredir işsiz olan 50 yaş üstü kişilere uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret	Pozitif, Uzun dönemde negatif
Eicher, Lechner, (2002)	Doğu Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Fitzenberger, Prey, (2000)	1990-1994 yılları arasında Doğu Almanya'da uygulanan eğitim ve yeniden eğitim programlarının etkileri	İstihdam Ücretler	Pozitif
Gerfin, Lechner, (2002)	İsviçre'de 1990'lı yıllarda uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif Korumalı işgücü piyasalarında negatif
Gerfin, vd. (2005)	İsviçrede uygulanan A.İ.P.P. lerin etkileri	İstihdam	Nitelikli ve kısa süreli işsizler için negatif, uzun süreli işsizler için pozitif
Giorgi, (2005)	İngiltere'de 18-24 yaş arası gençlere uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Graversen, Ours, (2006)	Danimarka'da Kasım 2005-Mart 2006 arasında işsiz kalan bireylere uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Hagglund, (2009)	İsveç'te 2004 yılında uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif önemsiz
Hardoy, (2005)	1989-1993 yılları arasında Norveç'te uygulanan A.İ.P.P.'lerin 16-25 yaş arası gençlerin istihdamına etkileri	İşsizlik Tam zamanlı istihdam Yarı zamanlı istihdam	İşsizliğe negatif, yarı ve tam zamanlı istihdama pozitif etki
Hohmeyer, Wolff, (2017)	Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret	Kısa dönem pozitif, uzun dönem belirsiz

Jaenichen, Stephan, (2011)	Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif
Jespersen, Munch, Skipper, (2008)	1995-2005 yılları arasında Danimarka'da uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret	Pozitif
Kastoryano, Klaauw, (2011)	1 Ağustos 2006-1 Nisan 2008 arasında 30 günden fazla işsiz kalan bireylere yönelik, Hollanda'da yapılan iş arama yardımlarının etkileri	İstihdam	Kısa dönemde etkisiz, uzun dönemde önemsiz etki
Karaginnaki, (2006)	Nisan 2002 de İngiltere'de A.İ.P.P. uygulamalarında yapılan değişikliklerin etkileri	İstihdam	İşçileri için pozitif, İşletmeler açısından negatif
Kluve vd. (1999)	1992-1996 döneminde Polonyada uygulanan eğitim programlarının etkileri	İstihdam	Pozitif. Önemli etki
Kolev, (2003)	Bulgaristan'da 1990'dan sonra uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret	Pozitif
Kraus vd. (1999)	1992-1994 döneminde Almanya'da yeniden eğitim programlarının etkileri	İstihdam	Pozitif
Larsson, (2000)	İsveç'te gençlere yönelik olarak uygulanan işgücü piyasası eğitim programlarının etkinliği	İstihdam	Kısa dönemde olumsuz, uzun dönemde sıfır veya pozitif önemsiz
Lechner, (2000)	1990-1996 döneminde Almanya'da uygulanan eğitim programlarının etkileri	İstihdam	Pozitif
Lechner, Miquel, Wunsch, (2007)	Doğu Almanya'nın geçiş sürecinde uygulanan A.İ.P.P. lerin etkileri	İstihdam Ücret	Pozitif Uzun dönemde erkekler açısından negatif
Mihaylov, (2011)	Bulgaristan'da uygulanan A.İ.P.P. lerin uzun dönem etkileri	İstihdam	Pozitif
Payne, (2000)	1995-1997 döneminde İngiltere'de yetişkinlerin beceri eğitimi programlarının etkileri	İstihdam Ücret	İstihdam pozitif, Ücret etkisiz
Pfeiffer, Reize, (2000)	Almanya'da Start-Up programlarından faydalanan firmalar açısından uygulanan A.İ.P.P. lerin etkileri	İstihdam	Negatif
Prey, (2000)	Ocak-Nisan 1998 döneminde İsviçre Kantonu St.Gallen'de uygulanan Almanca dil ve bilgisayar eğitimlerinin etkileri	Kısa dönem istihdam	Pozitif
Raaum, Torp, (2002)	1989-1994 döneminde Norveç'te uygulanan mesleki eğitim programlarının etkileri	İstihdam Ücret	Pozitif
Reenen (2003)	1998-2000 yıları arasında İngiltere'de düşük nitelikli ve az eğitimli kişilere uygulanan A.İ.P.P. lerin genç istihdamına etkileri	İstihdam Ücret	Pozitif etki Kadınlar açısından önemsiz etki

Richardson, Berg, 2006	Mesleki eğitim kurslarının (AMU), 1993-2000 yılları arasında İsveç'te işsiz kalan bireylere etkileri	İstihdam	Önemli pozitif etki
Rodokanakis, Moustaki, (2010)	Yunanistenda 1989-2003 yıllarında uygulanan A.İ.P.P. lerin etkileri	İstihdam	Etkisiz
Ronsen, Skarohamar, (2009)	Norveç'te uygulanan A.İ.P.P. lerin etkileri	İstihdam	Uzun dönem sosyal yardım alanlar için pozitif, göçmenler ve tek kadınlar için etkisiz, gençler için negatif
Rosholm, Svarer, (2004)	1998-2002 yılları arasında Danimarka'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif güçlü etki
Sianesi, (2005)	1994-1999 yılları arası İsveç'te iş arama yardımı ve mesleki eğitimlerden faydalanan 25 yaş üstü yetişkinlerin istihdam durumu	İstihdam	Kısa dönemde negatif, orta ve uzun dönemde pozitif etki
Stephan, (2008)	Almanya'da 2003 yılından sonra uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif önemsiz etki
Stephan, Pahnke, (2011)	Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Kısa süreli programlar daha etkili pozitif
Terrel, Storm, (1999)	Çekya'da, geçişten sonra uygulanan A.İ.P.P. ve işsizlik telafi sistemlerinin Çek nüfusu üzerindeki etkileri analiz edilmiş	İstihdam	Pozitif etki
Vangjeli, Stillo, Teneqexhi, (2012)	1999-2010 yılları arasında Arnavutluk'ta uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif etki
Vodopivec, (1999)	Slovakya'da 1992-1996 yılları arasında uygulanan A.İ.P.P. lerin etkileri (uzun dönemde damgalanma etkisi)	İstihdam	Kısa dönemde pozitif, uzun dönemde negatif
Webster, Johnson, (2001)	1995-1997 yılları arasında Avustralya'da uygulanan A.İ.P.P. larının etkilerinin düşük gelirli ve düşük eğitimli (dezavantajlı) kişilerle, yüksek sağlık ve eğitim harcamasında bulunan kişiler arasındaki etkilerinin karşılaştırılması	İstihdam	Pozitif
Winterhager, vd. (2006)	Batı Almanya'da uygulanan A.İ.P.P. lerin etkileri	İstihdam	Pozitif

5. Sonuç

Çalışma sonuçları incelendiğinde pozitif ve negatif etkilerin bulunduğu çalışmalar gözlemlenmektedir. Pozitif etki; uygulanan A.İ.P.P. lerin istihdamı arttırdığı (işsizliği azalttığı) veya ücretleri arttırdığı anlamına gelmektedir. Çalışmaların incelenmesi neticesinde pozitif etkilerin genellikle dezavantajlı kişiler üzerine uygulanan çalışmalardan elde edildiği görülmüştür. Örneğin hiç

eğitim almamış kişilerin veya çalışma çağına yeni girmiş kişilerin, engellilerin, çok fakir bölgelerde yaşayanlarla ilgili yapılmış çalışmalarda pozitif sonuçlar bulunmuştur.

Negatif sonuç ise A.İ.P.P. lerin dışsallıklarına vurgu yapmaktadır. Yani uygulanan A.İ.P.P. sonucunda işten çıkarmaların ya da ücret seviyelerinin düşmesi söz konusudur. Bu sonuçlar ise en fazla belirli bir eğitim ya da gelir seviyesine sahip kişilerin veya yeniden istihdam sağlanan kişilerin katılımcı olduğu programlarda gözlenmektedir.

Yine analizde gözlemlenen bir diğer sonuç ise; program uygulamalarının kısa dönemlerde yaptırımları nedeniyle pozitif sonuçlar verdiği, ancak uzun dönemde yükümlülükler ortadan kalkınca istihdam ve ücretlerin eski seviyelerine gerilediği görülmektedir.

Program uygulanan ülkelerin özelliklerine bakıldığında nüfus yoğunluğu ve işsizlik oranları düşük olan ülkelerde daha fazla olumlu sonuç alındığı görülmektedir. Ülke uygulamaları içerisinde en fazla dikkat çeken İsveç'tir. Burada ki politika uygulamaları genellikle aktif ve pasif önlemlerin karma olarak uygulandığı ve birkaç programın aynı anda uygulanarak katılımcısı için bazı yükümlülükleri de içerdiği görülmektedir.

Aktif işgücü piyasası politikalarının işsizliği azaltma, istihdamı arttırma ve ücretleri iyileştirme konularında pozitif etkisi yadsınamaz, ancak bu politika uygulamaları açısından fayda maliyet analizlerinin yapılması ve uzun dönemli istihdama katkı sağlayacak önlemlere öncelik verilmesi gerektiği düşünülmektedir.

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THE EFFECT OF FOREIGN TRADE INDEXES AND EXCHANGE RATES ON THE INFLATION: CAUSALITY, CO-INTEGRATION AND CORRELATION ANALYSIS

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Abstract

In the globalized world, understanding the movements and directions of macroeconomic variables in particular is a sensitive issue. The phenomenon of inflation which an important factor affecting the purchasing power of the actors in the economy has become more precise and complicated with the globalization movements. For this reason, the study tried to understand the changes in the consumer price index using the export value index, import value index and Euro and dollar exchange rate data. For this purpose, using the data of 149 months between January 2005 and May 2017, the causality between the import and export value indexes of CPI apparel and CPI food indices and the exchange rates between Euro and dollar was examined by Granger causality test. Subsequently, Johansen cointegration analysis was applied to find out whether there is cointegration between the variables. The variables were subjected to correlation analysis, independent of the results of the variables being the cause of each other or being co-integrated.

As a result of the study, it is seen that all the variables are not stable in the level values, but they become stable when all the variables have their first differences. The conclusion of cointegration analysis under these conditions is that all variables are co-integrated with each other. Besides, according to the results of the Granger causality test performed on the level values of the variables, the export value index is a Granger cause of the import value index. The import value index is reached as the result of the export value index not being the Granger cause. It is also seen that there is a one-sided causality from the dollar to the export value index, from the CPI to the Euro and from the CPI to the dollar. The most important finding that has emerged as a result of the Granger causality test is that there is no causality between the dollar and the euro. In addition, both the Euro-import value index and the dollar-import value index variables were found to have no causality. A positive correlation of over 90% was found between all variable pairs resulting from the correlation analysis of the data set. The result of the mutuality of the variables having a positive correlation with each other can be evaluated as an expected result. Having high correlations of non-causal variables of each other may indicate that they are dependent on the same common variables. Therefore, using variables that correlate with each other in direct prediction models may lead to erroneous results. The variables to be used in the forecasting model have also reached the conclusion that they must be the cause of each other at the same time.

Key words: Correlation Analysis, Co-Integration Analysis, Causality Test, Macroeconomic Analysis, Stability

DIŞ TİCARET ENDEKSLERİ ve DÖVİZ KURLARININ ENFLASYON ÜZERİNE ETKİSİ: NEDENSELLİK, EŞ BÜTÜNLEŞME VE KORELASYON ANALİZİ

Özet

Globalleşen dünyada özellikle makroekonomik değişkenlerin hareketlerinin ve yönlerinin anlaşılabilmesi oldukça hassas bir konudur. Ekonomideki aktörlerin satın alma gücünü etkileyen başat unsur olarak enflasyon olgusu küreselleşme hareketleri ile daha hassas hale gelmiş ve karmaşık bir yapıya bürünmüştür. Bu sebeple çalışmada, Türkiye ihracat değer endeksi, ithalat değer endeksi ile Euro ve dolar döviz kuru verileri kullanılarak tüketici fiyat endeksi üzerinde ortaya çıkan değişiklikler anlaşılmaya çalışılmıştır. Bu amaçla Ocak 2005-Mayıs 2017 tarihleri arasında 149 aylık bir veri seti kullanılarak Tüfe giyim ve Tüfe gıda endekslerinin ithalat ve ihracat değer endeksleri ile Euro ve dolar döviz kurları arasındaki nedensellik durumu Granger nedensellik sınaması ile incelenmiştir. Sonrasında değişkenler arasında eş bütünleşme olup olmadığının anlaşılabilmesi amacıyla Johansen eş bütünleşme analizi uygulanmıştır. Değişkenlerin birbirlerinin nedeni olmaları veya eş bütünleşik olmaları sonuçlarından bağımsız olarak değişkenler korelasyon analizine tabi tutulmuşlardır.

Çalışmanın sonucunda tüm değişkenlerin düzey değerlerinde durağan olmadığı fakat tüm değişkenlerin birinci farkları alındığında durağanlaştığı görülmüştür. Bu koşullar altında yapılan eş bütünleşme analizi sonucu tüm değişkenlerin birbirleri ile eş bütünleşik olduğu sonucuna varılmıştır. Bunun yanı sıra değişkenlerin düzey değerlerinde yapılan Granger nedensellik sınaması sonucu ihracat değer endeksi, ithalat değer endeksinin bir Granger nedeni iken, ithalat değer endeksi ihracat değer endeksinin Granger nedeni değildir sonucuna ulaşılmıştır. Ayrıca dolardan ihracat değer endeksine, Tüfe gıdadan Euro'ya ve Tüfe gıdadan dolara doğru tek taraflı bir nedensellik olduğu görülmüştür. Granger nedensellik sınaması sonucu ortaya koyulan en önemli bulgular olarak, dolar ile Euro arasında bir nedensellik olmadığı ayrıca hem Euro-ithalat değer endeksi hem de dolar-ithalat değer endeksi değişkenleri arasında bir nedenselliğinde olmadığı sonuçları saptanmıştır. Veri seti ile ilgili yapılan korelasyon analizi sonucu tüm değişken çiftleri arasında %90 üzeri pozitif bir ilişki çıkmıştır. Birbirleri ile pozitif korelasyona sahip olan değişkenlerin birbirlerinin nedeni olmaması sonucu yadsınacak bir sonuç olmayıp beklenen bir sonuç olarak değerlendirilebilir. Birbirlerinin nedeni olmayan değişkenlerin yüksek korelasyona sahip olması aynı ortak değişkenlere bağımlı olduklarını ifade edebilir. Bu sebeple aralarında korelasyon olan değişkenlerin doğrudan öngörü modellerinde kullanılması hatalı sonuçlar doğurabilmektedir. Öngörü modelinde kullanılacak değişkenlerin aynı zamanda birbirlerinin nedeni olması gerekmektedir sonucuna ulaşılmıştır.

Anahtar kelimeler: Korelasyon Analizi, Eş-Bütünleşme Analizi, Nedensellik sınaması, Makroekonomik Analiz, Durağanlık

SUSTAINABLE DEVELOPMENT AND THE CONSTRUCTION INDUSTRY: A CASE STUDY IN GEORGIA

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Abstract

A trend of investing in the construction industry and the erection of new buildings in Georgia, particularly in Tbilisi is changing the face of the city. However, the transformation does not follow or adopt the standards and sustainable development policy, thereby, the lack of concern for pursuing sustainable and green construction industry is obvious.

Tbilisi is an old and civilized metropolitan, with a similar characteristics as many European and Caucasus region cities do. Over the last couple of years, many single houses in Tbilisi have been converted into the high rise apartment buildings built with a low quality materials and design. Gradually, this trend is shaping the future of the city in a different fashion, which could be destructive in terms of environmental, cultural, and historical dimensions. To prevent the detrimental impact, the concept of sustainability has risen worldwide, but Georgia lacks a resolution to develop a set of sustainable strategies for the construction industry.

This study investigates to what extent sustainability issues are perceived in the construction industry. What decisions need to be employed for the inducement of sustainable development of construction industry in Georgia. The study results show a major lack of awareness amongst citizens and also the construction companies, due to the deficit of information and ineffective regulations or policy concerning sustainable development.

The result of this study proposes a roadmap for implementing sustainable components in the construction industry. This will lead the industry towards green by means of energy efficient buildings along with the consideration of urban beauty and preserving its characteristics by maintaining the country environment, history and culture.

Key words: Sustainable development, construction industry, environmental economics, transition.

1.Introduction

Generally, to stimulate growth, the economies entail to increase the volume of resources, including nature, land, labor (Turkhachev, 2015). Buildings account for more than 40% of Europe's energy consumption. This includes energy consumed by residential, commercial, and industrial buildings. Studies have revealed that 30% of CO2emissions in the EU are from buildings. Further, it has been found that the energy used in heating living spaces in residential buildings accounts for 57%, while that for water is about 25% of the entire energy used (Zogou, et al. 2011, Filippini et al, 2014, EAA, 2013). Since no two houses are exactly similar, as suggested by (Liu et al. 2011), it is important to analyze the energy savings potentials of buildings and construction techniques at a micro scale (i.e., individual household scale) and the result can then be possibly extrapolated to a macro scale (i.e., regional or national housing scale). There is a need for more detailed investigations into the integration of technology and material as a component of the whole building composition at the design stage. This study investigates to what extent sustainability issues are

perceived in the construction industry. What decisions need to be employed to induce the sustainable development of construction industry in Georgia.

2. Construction sector in Georgia

The construction sector in Georgia has become one of the most important economic phenomena.After the collapse of the Soviet, almost for 20 years no additional buildings were constructed in Georgia. Despite the significant outflow of population (over one million people), the urbanization process caused a certain housing deficit. The reasons for the rise of the construction sector after the "Rose Revolution[1]" were quite simple: the growth of demand due to urbanization, the simplification of bureaucratic procedures, and the optimistic expectations of society and many other reasons. In a case study of southern Russia rural areas,Turkhachev (2015) suggested a sustainable development, tourism plan to maintain people in rural areas by having them employed and earning more with no violation of economic growth, while theenvironment, nature and also culture would be preserved. Nevertheless, rural tourism and related rural infrastructure to support tourism were never developed in the Caucasus countries under the Soviet Union. Conversely, the resource of the Caucasus countries and Russia has a potential for the development of tourism, including a high cultural and natural diversity, a rich historical and cultural potential, an enormous area of agricultural land, and well conserved local customs.The growth in tourism industry would be an approach to the sustainable development (Ivogla and Erokhin, 2013). In this manner, the country economic growth and development would be equally distributed over urban and rural areas.

Recently, many foreign companies are interested in the real estate market in Georgia.

Among foreign investors, there are financing projects for the construction of tourist facilities, such as network hotels of the world brands. The most popular are the construction of housing and the construction of tourist facilities. As for commercial real estate, almost all the first floors of buildings under construction are intended for shops and other social and welfare facilities.

Due to the large-scale reconstruction of the historical part of such cities as Tbilisi, Kutaisi, Batumi, Sighnaghi, as well as works on infrastructure rehabilitation in almost all regions of the Georgia, many construction and development companies receive large contracts from municipal authorities and the Ministry of Infrastructure and Regional Development (Shilina et al, 2011).

To sum up, the real estate or construction market in today's Georgia is a promising and growing sector. Although compared to last years, the pace has slowed down as a result of internal causes as well as international economic issues. Currently, the most popular targets in the construction market are the housing and the tourist facilities. In so doing, foreign companies who are capable of investing in hi-tech can participate in infrastructure projects financed by the state.

2. Methodology

This study is developed based on a quantitative and qualitative research.

2.1 Interview

[1]Describes a pro-Western peaceful change of power in Georgia in November 2003. The revolution was brought about by widespread protests over the disputed parliamentary elections and culminated in the ouster of President Eduard Shevardnadze, which marked the end of the Soviet era of leadership in the country. The event derives its name from the climactic moment, when demonstrators led by Mikheil Saakashvili stormed the Parliament session with red roses in hand. Consisting of twenty days worth of protests, the Revolution triggered new presidential and parliamentary elections in Georgia, which established the United National Movement as the dominant ruling party. Following the Rose Revolution, Georgia pursued a decidedly pro-Western foreign policy and declared European and Euro-Atlantic integration as its main priority; this change in trajectory contributed to Georgia's tensions with Russia, which continue to this day.

An in-depth interview with a representative of the Georgian construction Alliance companies was carried out.The interviewee responded to the nine questions. The intention was to investigate how much sustainable development strategies have been applied by construction companies, do they use sustainable materials in the construction. In addition, do they concern about customer satisfaction after purchasing.On the other hand, how the government contributes in regulating sustainable development instructions. Does the government compel constructors to consider and devise parking space, pavement and harmonization of the building's exterior in the area.

The interviewee stated that there is no sustainability in the construction industry, he believed that only advanced and developed countries have already adopted sustainable plan scheme in their construction market. In fact, Georgia is a developing country, which has not set any sustainability scheme such as buildings' saving energy, sustainable material used in the buildings, and the conservation of the environment. In addition, the interviewee believes that the government interference and support would be necessary to make the ease of importing sustainable materials, create and regulate a policy for sustainable development plan.

2.2 Questionnaire

To observe the level of demand for sustainability in Georgia a set of questionnaires was sent to 320 people and 250 completed questionnaires were received. The figure below shows the percentage of those who are aware of the "sustainable development" concept.

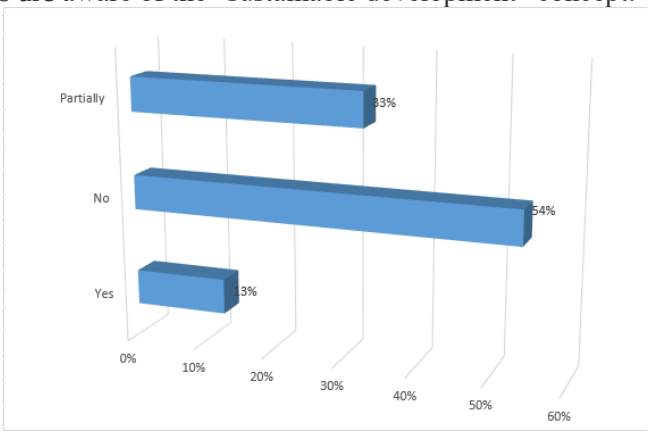

Figure 1. Do you have any information about sustainable (ecological) development?

As shown in figure 1, the 50% of the participants had no information about sustainable development notion. But, the 33% were acquainted with the terminology, and the 13% were aware and had knowledge about the "sustainable development" concept.

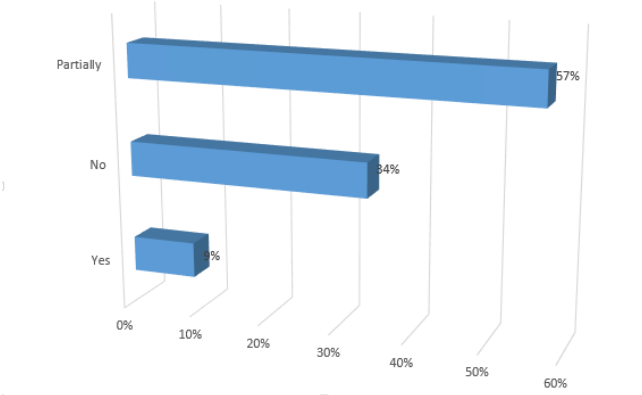

Figure 2. Are you satisfied with the materials used during the construction process?

Figure 2 shows that the 57% of the respondents believed that the used materials during the construction process is good enough, however the quality could be improved. This shows that consumers were informed about the international standards and they demand the same quality. The 34% of respondents were not satisfied with the quality of the materials and 9% of construction companies' consumers were fully satisfied with the used materials.

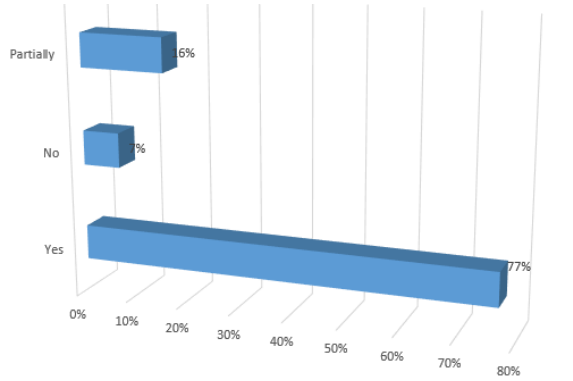

Figure 3. Is it important for you to use alternative energy resources on your new property?

As shown in figure 3, 16% of the respondents were partially ready to use alternative energy sources and 7% were absolutely considered the usage of alternative energy unnecessary. On the other hand, the77% of the respondents significantly supported the utilization of alternative energy sources.

2.3. Findings and Discussions

The results from the first part of the study, interviewing a representative of construction companies, indicates the concern for the country natural assets and preservation of environment, urban and rural planning, culture and social concepts have been neglected by both construction companies and government.

On the other hand, the results of the analysis in figures 1 and 2 imply a major lack of peoples' awareness and knowledge about the environment, urban planning, preserving natural resources, and the economic growth in rural areas and the society. Figure 1 indicates that half of the respondents do not know about sustainable development plans. In line with that the answers to question 2 illustrated in figure 2 indicates over half of the population are satisfied with the material used in the newly built properties. Only 34% of the respondents are not satisfied with the materials used in the buildings. However, the figure 3 shows that the 77% of the respondents believe in the utilization of alternative sources of energy, this can explain people's concern for the current high cost of utilities and make them to be in favor of alternative sources of energy.

3. Conclusions and summary

A key problem with the position of the sustainable development system in Georgia can be explained as the lack of government and construction industry concerns along with unawareness of the ordinary people. It has been stated that the government regulations exacerbate the situation, yet environmental resources should be treated as an asset or natural capital, and invest in raising society awareness, set regulations and take action upon that.

The Georgian government can educate and spread general information about sustainable development concept. To raise ordinary citizens' awareness about the value of preserving the natural asset for the current and future generation given that the neglect would be a substantial harm for the country. The government is the only entity that has the capability to reach out its entire citizens and single-handedly raise public awareness levels. Nevertheless, the private sectors' effort would certainly help to make a visible change.

Furthermore, the private sector and government coordination will move the process of sustainable development and using ecological materials forward. The public sectors' monitoring throughout the construction should be taken seriously to inspect the building construction process consistent with the sustainable laws and regulations.

The lack of knowledge about the sustainability concept results in no demand for ecologically friendly materials. If the demand for sustainable products increases, the value that people place on sustainable buildings or sustainable city would compensate the high cost of importing biological materials.

In addition, there is a lack of information among construction companies too. The main reason once again is the lack of capable resources to conduct a valuable and effective study. In so doing, the task of the scholars is to focus on the research topics that lead the society towards the sustainable development.

The consideration of alternative energy utilization should be supported. Many countries are investing in alternative sources of energy, Georgia can be flourished through the sustainable development scheme as this country relies on its natural assets such as water, rain, snow, the sun, land, and natural energy in which they can be utilized flawlessly. A further study can be employed to appraise the significance of using the sustainable materials and also the integration of fitting alternative energy systems into the buildings.

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WILLINGNESS TO PAY FOR RENEWABLE ENERGY IN TURKEY

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Abstract

Turkey as a developing country has experienced rapid economic growth and its energy needs have thus been on top of their development agenda. In addition, according to its 2010-2014 action plan framed by the Ministry of Energy and Natural Sources, Turkey has an ambitious national energy goal of minimizing energy import and maximizing domestic energy and plan to produce 30% of electricity production from renewable energy sources until 2023. However, little is known about the consumers' preferences for renewable energy in Turkey. This study thus aims to investigate households' willingness to pay (WTP) for green electricity by applying the Tobit model and using 2,500 surveys based on contingent valuation method consisting of a total of 26 questions. The results reveal that household income, household size, education, environmental conscience and gender are highly related to WTP for renewable energy in Turkey. The results of this study aim to offer useful insights to the government and utility companies and help them to carry out the target.
Keywords: Renewable energy, Contingent valuation, Willingness to pay

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SOCIAL MEDIA IN TOURISM

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Abstract

This paper discusses on the development that Social Media has in the recent years and the rate of Social Media usage in Albania and compared to other countries. The broad usage is due to the internet penetration rate in a specific population. As people are spending a significant part of their free time in Social Networking, it is important for marketers to meet with this audience by formulating tailor-made Social Media Marketing Strategies. Tourism Industry is also interested to communicate to this audience. This paper is based on secondary data and its main goal is to give a landscape of the increasingly important role that social media is playing in many aspects of tourism, and as a consequence of this importance many countries have a National Online Strategy for Tourism Industry. Social media plays an important role in information search, decision-making behaviors, and tourism promotion and so business in tourism industry use social media to communicate to potential tourists with objectives that consider this role. According to data, Facebook appears to be dominant towards other social network platforms. According to a compilation prepared by Statista (2016) Facebook holds an 18% market share with 1.590 million users globally. According to Global Web Index (GWI) as one of the most reliable research sources of social media statistics social media market is growing each year. Comparing to year 2016 active social media users have been increased by 21%. Specific data on social media usage give a better understanding how people behave on social networks and can help tourism industry to develop a successful communication strategy. Understanding the critical success factors can help companies or destinations to develop effective Social Media Marketing campaigns. These success factors can be crucial in business promotion and also in tourism promotion. It is of great importance to create attraction and interaction. Through social networks, people can become great promoters of the places they visit, or of the places they live.

Keywords: Social Media, Facebook, Internet, Tourism, Communication

1. Introduction

Academics and professionals of marketing have nowadays understood, accepted and applied the new media that actually have an increasing influence through technology (mobile phones and internet) in our lives. As we are now, connected to each-other through internet, which is available not only in our computers but recently on our mobile phones, we can get connected through social and professional networks at any time. Social media has emerged as the new way in which people connect socially, by integrating information and communication technology, social interaction and the content based on words, pictures, video and audio.

Now companies all over have change their communication strategy comparing to the one they used 10 years ago, by adopting it to the social media communication. The tourism industry is part of this change and adoption. Companies need to be where people are, and people are everyday more on social networks.

2. Social Media Definitions, Share and Growth

Even though there is no single definition, all authors agree on the same characteristics. Mangold & Faulds (2009) state that Social Media is "Online information that are created, initiated, circulated, and used by consumers intent on educating each-other". Barkan (2009) emphasizes that Social Media is "a collection of internet based applications that enable peer to peer communication and sharing of information". Campbell (2009) indicates social media as "a type of website, application or communication vehicle where people connect to one another; discuss and interact; share content and ideas; and build

relationships." AMA (American Marketing Association) definition on social media is "Sites where users actively participate to determine what is popular."

Social Medias are build on Web 2.0 which indeed is not a new technology but development of the existing on and the creation of the social networking through which photos, videos, and written words are shared.

The most popular social networks have been changing over time towards one brand taking advantage on the others. Actually in Albania people are familiar with: *Facebook,LinkedIn, YouTube, Twitter, Instagram, SnapChat, WhatsApp, Viber, Tinder* etc.

According to Global Web Index (GWI) as one of the most reliable research sources of social media statistics to compare consumer use and engagement across different social network there are globally (published on January 2017):

- 3.773 billion internet users, 50% penetration rate
- 2.789 billion active social media users, 37% penetration rate
- 2.549 billion active mobile social users

It is clear from the charts that social media market is growing each year. Comparing to year 2016 active social media users have been increased by 21%, while internet users increased by 10% and active mobile social users increased by 30%.

According to a compilation prepared by Statista (2017) the mos famous social network site worldwide as of August 2017 is Facebook with 2.047 million users. Statista (2016) reported on the most popular social networks worldwide, with over 1,870 million active users, Facebook held an 18% market share, 7% more so than its closest competitor, the Facebook-owned, WhatsApp.

Due to a constant presence in the lives of their users, social networks have a decidedly strong social impact. The blurring between offline and virtual life as well as the concept of digital identity and online social interactions are some of the aspects that have emerged in recent discussions.

According to PEW Research Center (April, 2016), among US usersFacebook is also retaining a huge lead on the competition. It actually increased its penetration to 89% of US internet users, whilst Facebook-owned Instagram came 2nd with 32% penetration.

Also according to comScore on the audience engagement, Facebook si dominant.Facebook's dominates extraordinarily by not just taking the top spot, but it's other platforms also take 2nd and 3rd respectively. Facebook Messenger has an 47% penetration, and Instagram (also owned by Facebook) comes 2nd for engagement.

In this recent chart from Pew Internet below, we can see in terms of active daily use Facebook is also in the lead. 76% of users log in daily, whilst 51% do for Instagram (owned by Facebook). Twitter manages just 42% of users login in daily, only just over half the Facebook figure.

3. Social Media in Albania

Internet penetration in Albania started during year 2000. The usage rate of different Social Media depends on the internet usage coverage rate of a country. As Social Media is based on Web 2.0 technology, the least requirement for Social Media, is that a specific population has internet coverage.

The data from Internet World Stats (http://www.internetworldstats.com/euro/al.htm) show that the internet usage rate in Albania has increased rapidly in the last 10 years, starting at 0.1% in 2000 and reaching the usage of 43.5% of all population in 2010. Only during the year 2009-2010 this rate was doubled. And in 2013 compared to 2010 it has been increased from 43.5% to 60,1%. As of March 2017, data shows that internet users are 1,916,233 from a total population of 2.911.428 inhabitants, 65.8% internet penetration rate and 48.1% Facebook penetration rate.

The rate of 65.8.1% internet usage can be considered high if we compare it to Greece – Internet penetration 66.1%; Facebook penetration 45.9%; Italy - Internet penetration 86.7%; Facebook penetration 50.2%; Croatia - Internet penetration 74.4%; Facebook penetration 42.8%).

According to statsmonkey.com, 96.76% of social media users, are Facebook users, 2.81% are Twitter users and the other social platforms have less than 1% share.

4. Why Should a Tourism Industry Care about Social Media?

Social media has emerged as the new way in which people connect socially, by integrating information and communication technology, social interaction and the content based on words, pictures, video and audio. There are many reasons why tourism industry needs to deal with social media.

1- Social media is power to people. According to Rupert Murdoch, Global Media Entrepreneur, "Technology is shifting the power away from the editors, the publishers, the establishment and the media elite. Now it is the people who are in control." As Social Media is defined "the world of mouth in steroids" and as the audience in numbers is getting larger and also the time spent is getting longer, this is the right place where marketing managers should focus on their communication.

2- *Social media produces communication.* According to Mangold & Faulds (2009), Social Media lets users exchange information with each other and with an organization, and as such, it is best considered a word-of-mouth communication. Consumers are turning away from traditional marketing communications, and instead are using their SM connections, turning to one another for buying advice, and reducing their reliance on advertising. Individuals use Social Media to let others know about things with which they connect emotionally, therefore it is imperative for marketers to create a strong emotional connection between a brand and its users.

3- Social media affects the brand. According to Preetam (2011), Building Brand Loyalty/Brand Commitment can be done by integrating the use of Social Media by the companies. There are many web analytical packages (both free and paid) are available with the help of which companies can track online marketing initiatives and also customer response. Social media helps to improve brand visibility and engage with existing and potential customers.

4- Social media is a communication channel. According to Mehmood Rehmani (2011), Social Media has melted away the barriers to the flow of information among people. Internet has made it easier than before for marketers to communicate directly with consumers and target audiences. Therefore, Social Media is being considered playing an important role in customer buying decisions. This occurs because people can take complete information of a particular product and can also make comparison amount different products of different brands. As a result they buy product of their own choice and this leads to brand commitment.

5- People spend their free time on social networks. According to *Nielsen, Global Faces & Networked Places, 2009*, "because time spent in social networks is growing at 3 times the overall internet rate, accounting for an average of 10 % of all internet time.

5. Critical Successes Factors in Social Media in Tourism

Upon examining the literature for success factors in Social Media Marketing, certain concepts and recommendations appeared repeatedly. These concepts and recommendations are listed below and explained as critical success factors:

1. *Having a Social Media Marketing Strategy.* Social Media Marketing should have a clear defined strategy and there is nothing happening accidentally. A Social Media strategy assigns specific roles to marketing staff, describes the brand's attributes, its users, and explains how Social Media Marketing can be used to engage the company's target audience.

2. *Integrating the Social Media Marketing strategy into the Marketing Strategy.* SMM should be part of Integrated Marketing Communication Plan. Integrating the SMM campaign into the overall marketing strategy is crucial to advance a unified and clear message to the brand's target population and keep the message coherent.

3. *Optimization of Social Media.*Traffic through Social Media varies depending on how relevant and shareable the content is. According to Constantinides, et al. (2008), website SMO allows online shoppers to obtain richer, high quality, and more trustworthy information by accessing other shoppers' opinions about a product.

4. *Creating a community.* The community is our audience with our followers. Creating an Internet-based community which lets users create content and share ideas can multiply a brand's reach, increase its supporters and help bring innovative products to market.To be influential, communications have to talk to users' emotions and provide a clear benefit (Mangold & Faulds, 2009). Marketing managers should always remind that building a community around a brand requires time. A campaign may drive

traffic to a community, but out of the many who may visit, only a few will decide to connect; and they will only stay if the content is relevant and easily understood.

5. *Encouraging user to create content and give feedback.* It is very important to understand that SMM is a dialogue with the customers, not a monologue. According to Constantinides, et al., 2008, "Companies are increasingly engaging their customers in internal processes, where they can act to bring innovative products to market and reduce development costs". Encouraging users to create content and give feedback can lead to brand loyalty among a community's users, who are seeking for personalized interactions with brands.

6. *Being open and honest*. As we are interested to build relationships that often seem to be personalized, there is no better way to build them in long term rather than being open and honest. Openness and honesty are critical traits marketers must possess when implementing a

Social Media Marketing campaign. When discovered, a lack of honesty can be very damaging for a brand's reputation, such as the damage to British Petroleum's image and market valuation in the wake of the Gulf of Mexico oil spill. To receive the public's trust, marketers need to be transparent when engaging in SM activities.

7. *Keeping content fresh and relevant.* We need to feed the content of SMM frequently.Information in Social Media must be easy to understand and share. Advertising through Social Media works best when it is related to the website the user visits. Evans & Epstein (2010), in their study to measure user interaction with different types of advertisements, found that Advertising works best when it is related to the content of the website the user visits.

8. *Making the user feel special.* Making users feel special and rewarding participation helps the brand to maintain them engaged and loyal.

9. *Creating a cause and Identifying with it.*Brands that want to succeed in a Social Media environment must also build goodwill and a positive image by identifying with a cause. This part of SMM is closely related with the Social Marketing strategy and how the brand is socially oriented. Participating in a cause that benefits society is not only accepted or encouraged, but demanded by individuals who desire to see brands act in a socially responsible manner. According to Mangold & Faulds (2009), "Brands can create emotional bonds with their customers by embracing a cause that is important to them, and creating a story around it".

10. *Measuring Social Media Marketing performance.* ROI of SMM is offered by the technology used and the literature shows that the highest ROI through SMM is in brand awareness.According to Warren (2009), the first step in measuring SMM performance is to clearly define the strategy's goals, be they tangible or intangible.

6. Best Practise from Tourism Australia

Tourism Australia are global leaders in social media destination marketing. They have reached almost 8 million fans registered in Australia Facebook fan page by September 2017.Tourism Australia is the Australian Government agency responsible for attracting international visitors to Australia, both for leisure and business events. They are active in 17 international markets, promoting unique attributes which will entice people to visit and targeting people who research indicates will spend more and travel most widely through the country.

Social Media management for Australia is a specific success story. The strategy is based on innovative content. The Tourism Australia social media team decided to use the fact that Australia is a naturally scenic destination and this scenery is foremost conveyed via images. Fans post photos with the understanding that Tourism Australia may use these images for promotion. This made the content on social media, user-generated content. Word of mouth on this experience increased the number of loyal fans and highly engaged fans. By promoting the destination by a fan photo shoot, the fans became brand ambassadors. Turning over their Facebook page to the fans was their single biggest turning point, resulting in massive levels of engagement. A single photo may get thousands of likes, shares, and comments and gives the photographers (both amateur and professional) a chance to showcase their work, and the fans to share their holiday pics. Social sharing is a key part of Tourism Australia's strategy. When fans share images, they are also reaching out to their network of friends and saying "look, we've done this and you can too", thus extending the reach and virality of each story. The strategy itself is using content to shape visitors perceptions. The strategy is based on pillars activity. Aquatic &Coastal,

Restaurant Australia and Nature and Wildlife pillars represent a large segment of this activity. One of the strategic success factor is that Tourism Australia started the social media campaign by with engaging tourism industry and Australian residents. If that is not possible then there's very little chance to be able to engage visitors. For them, over 90% of content submissions come from locals. It's always their preference to elevate local stories rather than those created by a visitor who is just passing through.

7. Conclusions

As mediums between companies and consumers, Social Media has earned an important role in Marketing Strategies. Facebook actually appears to be the most popular social platform. Social media plays an important role in information search, decision-making behaviors, and tourism promotion and so business in tourism industry use social media to communicate to potential tourists with objectives that consider this role. A Social Media Strategy assigns specific roles to marketing staff, describes the brand's attributes, its users, and explains how Social Media Marketing can be used to engage the company's target audience. Integrating the SMM campaign into the overall marketing strategy is crucial to advance a unified and clear message to the brand's target population. Understanding the critical success factors can help companies or destinations to develop effective Social Media Marketing campaigns. These success factors can be crucial in business promotion and also in tourism promotion. It is of great importance to create attraction and interaction. Through social networks, people can become great promoters of the places they visit, or of the places they live.

The best practise of Tourism Australia highlights the importance in having an innovative strategy of user-generated content. This paper paves the way for a future research in Albanian tourism market and the best practice of Australia could be a good example to follow.

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THE FACTORS AFFECTING CUSTOMER SATISFACTION IN THE GSM SECTOR AND EXAMINING THE EFFECT OF CUSTOMER SATISFACTION ON CUSTOMER LOYALTY[1]

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Abstract

This study carried out to analyze of affecting factors of customer satisfaction and loyalty in the GSM Sector. Companies have to develop various applications and programs in order to retain customers they have. It has been well understood by companies that retaining current customers is less costly than acquiring new customers. Because of this, companies need to long term relationship with its business partners, especially their customers, depending on customer satisfaction and loyalty. In this context, this study examines some variables effecting customer satisfaction and loyalty such as perceived service quality, perveived customer value, corpoarte image, customer trust and customer orientation. The GSM sector of Turkey was selected for this study and data was collected from customers using mobile applications and services. Structured questionnaire form was used in order to obtain research data. At the process of develop research scales, previous studies in the literature were used. The sample size for this study was determined 664 in accordance with the level of confidence interval. The data in relation to this research were analyzed by using univariate and multivariate statistical tools such as cronbach's alpha, exploratory factor analysis and structural equaiton modelling. The results obtained indicate that all the results were positive and all the hypothesized relations were supported with the except for customer orientation. Perceived service quality, perceived customer value, corporate image and customer trust have positively effects on customer satisfaction and customer satisfaction also have positively effect on customer loyalty. The results of this study are significant for the companies to develop their customer satisfaction and loyalty, and improve their competitiveness via marketing programs in order to retain their customers and to cope with ever dynamic market conditions.

Keywords: Customer Satisfaction, Customer Loyalty, Perceived Service Quality, Customer Orientation, Corporate Image.

[1] This Study is revised version of master thesis titled as the Factors Affecting Customer Satisfaction In The GSM Sector and Examining the Effect Of Customer Satisfaction On Customer Loyalty that carried out at the Institute of Social Sciences of Dumlupinar University