FINANCIAL CRISIS IMPACT ON SMEs AND SMES STRATEGIES DURING ECONOMIC CRISES: A CASE OF SIVAS PROVINCE

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Abstract
Financial crises affect all the economic units according to the region, country and firm structure at macro and/or micro levels. The purpose of this study is to determine how SMEs, which are the smallest building blocks of economics and have a share over 95% of both developed and developing countries' economic structure, are affected from financial crises. It's very important for the economical structures of countries to develop strategies and politics by the examination of effects of financial crises over SMEs and by determining how some firms managed to be successful during the crises while some of them failed. The practice of the study was realized on manufacturing firms in Sivas territory. The reasons to choose the manufacturing sector are the majority of the manufacturing firms among the main sector groups in Turkey and the contribution of manufacturing firms both to the employment and export. The "liquidity, financial structure and profitability ratios" of these firms will be calculated with the use of the firms' financial tables which have successful audit reports. The ratios covering a 5 year-period (2006-2010) will be calculated to be able to make a comparison between the pre-crisis and post-crisis terms.

Keywords: financial crises, Turkey, SMEs, ratio analysis.
Jel codes: G10, G01,G17

1. Introduction

The costs of economic crises which bubble up with various reasons have been heavy for economies around the world. These heavy costs negatively affect the economies on macroeconomic and microeconomic basis. On microeconomic basis, the crises especially affect the Small and Medium Enterprises (SMEs) which are the keystone of the real economy. The negative effects of crises enumerable as recession in the economy, increases in poverty, loans, uncertainty and input costs, devaluation, decreases in investments (both portfolio and direct investments) and stock exchange markets. Moreover, the empirical studies suggest that the effects of crises on the SMEs are decreases in sales due to the weakness in demand, liquidity shortages, and increases in financing problems, costs, foreign debt stock and bankrupts.

Recent researches in crisis revealed that a crisis of a country impacts both own firms and the other countries' companies which are related economically (directly or indirectly). SMEs are critical factors of an economy on employment, added-value and regional development. Despite the SMEs have some advantage in consequence of their small scale, they have substantial financing problems. SMEs which have economically problems in a good light face extra problems during the crises periods.

The main purpose of this paper is to specify strategies for SMEs during the crises. In accordance with this purpose the study analyses the liquidity, financial position, operating and profitability ratios by using the financial statement of 16 SMEs which operate in Sivas Organized Industrial Zone. The data set span the time period 2006-2010 in order to compare the pre-crisis and post-crisis terms. This study analyses the ratios by using the *t-tests* that depends on the study hypothesis and suitability of data set.

2. Financial Crises and Notion of SMEs

There is no consensus on the notion of economic crises between the social scientists. While some of them explain the crises as depression and recession the other some define as deflation and inflation. Besides, the necessity of defining of the financial crises as an economic crisis complicates the concept further (Eğilmez, 2010).

Basically, the crisis can be expressed as the inconsistency between the expectations and environment of companies (Yalçın and Gafuroğlu, 2008). These companies have difficulties to solve the problems by using the existing solutions after facing with these inconsistencies (Delice, 2003). Sometimes, the point of origin of the crises can be real sector and sometimes it can be financial sector. So, after the crisis, the origin sector of crisis is able to affect the other sectors (Eğilmez, 2010).

There are some theoretically transmission channels from financial crisis to the real economy. These transmission channels are credit channel, monetary channel, cost of capital, bank capital channel, wealth effects, uncertainties, exchange rate volatility channel.[1]

2007 U.S. subprime mortgage financial crisis clearly indicates that the effects of the economic crises are not only regional but also global in today's world. The crisis of any country spreads to the other countries of the world by tightly integrated financial markets (Emir and Eyüboğlu, 2010).

The global financial crises have influenced both financial markets and real economies. The SMEs are the great majority of real economies in both developing and developed countries. Therefore, the situation which is encountered by the SMEs can be utilized the main report of real economies in the course of economic crises.

The descriptions of SMEs are different according to some countries. In Turkey, the description of SMEs is the firms which employ 1-50 employees are "small enterprises" and 50-150 employees are medium enterprises (KOSGEB, 2003). The importance of SMEs' have gradually increased form years due to enhancing the income distribution, decreasing the disparity between regions, promoting and completing the conglomerates, accommodating to fluctuant market conditions and innovation and creating employment and added-value (KOSGEB, 2003).

The main staggers in economic growth have related with the issues of financial system. The current global financial crises have shown this situation again. The illiquidity of global financial markets has influenced the great deal of countries' economies and has slowed up the high economic growth (Pasadilla, 2010:1). Given the fact that one of the major problems of SMEs is financing and the crises affect the economies more negatively during the crises due to inhering the financing problems (Ay, 2008, Ma and Gui, 2010).

The crises periods involves high risks, negative effects, increasing uncertainties and difficulties on sustain the routine works from the point view of firms. During the crises, the firms are exposed with difficulties such as quickly problem-solving in addition to their existing problems. In a sense, the crises effects the firms by exogenous and endogenous channels (Titiz and Çarıkçı, 2001).

If we consider the world economy have had crises since the early 20th century and after 1980s these financial crises have increased in number and effected more countries (Güloğlu and Altunoğlu, 2002) and also the crises have emerged due to nature of capitalism (Akgüç, 2009), analyzing the good and bad strategies of SMEs in the period of crisis becomes more of an issue.

[1] For detailed information See: Furceri, D.- ve Mourougane, A. (2009). Financial Crises: Past Lessons and Policy İmplications. *OECD Working Paper* No: 668, pp,30-31.

3. Theoretical Literature

There is no extensive literature that studies how do crises affect the SMEs and what kinds of strategies are pursued by the SMEs in the course of crises. One of the main reasons of this situation is the difficulties of data capturing about SMEs especially in developing countries. However, there are some empirical studies in the literature that shut some light on this issue.

Ekşi (2010), analyzed the dimension of the response of SMEs which are organized on textile sector in Turkey to the financial crises on the basis of scale-differences and suggested that the SMEs had held high-liquidity, became indebted by short-term-borrowing. Moreover, most of these SMEs had preferred to sale fro cash. According to Ekşi (2010), both SMEs and conglomerates are affected from financial crisis however the conglomerates have recovered before SMEs.

According to Liu (2009), during the period of both 1997 Asia Crisis and current financial crisis, the SMEs of People's Republic of China (PRC) are negatively affected. Even as these crises, the SMEs of PRC had faced with decrease in number of SMEs, employees, export growth rate, production values, registered capital, business revenue. However, during these crises the SMEs had faced with the financing problems. According to Liu, for decreasing the negative effects of crises on SMEs the PRC government must develop policies which include the supports on taxation and credit channels.

Soysal et al. (2009), analyzed the crisis management tendencies of 45 SMEs of Kahramanmaraş textile sector. Their findings indicate that despite these SMEs make an effort for institutionalizing the crisis management; their scaffoldings are far from professional and scientific perspective.

According to Murat and Mısırlı (2005), the SMEs in Turkey were affected from 2001 Turkey Crisis but these SMEs had not endeavored on crisis management due to their business manager's restricted experience and knowledge about crisis management.

Yörük (2001), had researched the impacts of 2001 Turkey Crisis on the SMEs of Tokat (a city in Turkey). According to his findings the %83.3 of these SMEs had financing problems, %26.7 of these SMEs had not laid a scheme on crisis management and the %57.1 of the SMEs which had a plan on crisis management laid a scheme for short-term. Moreover, Yörük suggests that, the factors invalidate the planning are politic and economic (exchange rates, inflation, interest rates) uncertainties, high inflation and high interest rates. Finally these SMEs follow the strategies that include equity enhance, reducing the costs and production during the crisis.

Karaltı et al. (2009), studied on the effects of current financial crises on 112 SMEs in Region of Lakes of Turkey and suggested that during the crisis the sales and employment of these SMEs decreased in regardless of sector differences. According to study, although the costs and material shortage increased after crisis, these SMEs have not planned on crisis management.

4. Borders of the Study

The city chosen as study area is determined according to constraints like time, attainability and financial possibilities. It is a time constraint to obtain data from manufacturing SMEs that function in Sivas Organized Industrial Zone. Because there are difficulties to access past data of these firms. So the data between 2006 and 2010 are used in this study. The balance sheets and income tables of the firms are employed to calculate financial ratios in respect to reveal the financial situation of the firms. The identification of the scales is based on definition that is made by Presidency of Development and Support of Small and Medium-sized Enterprises Administration (KOSGEB) in Turkey[2]. In Sivas, 1. Organized Industrial Zone 86 firms are functioning. Within this scope the number of the firms that is accessible and applicable for this study is 16. The 8 of these are small sized and 8 are medium sized. The sample set is 18% of the universe.

The source of data is balance sheets and income tables in basic financial tables of the firms. By using these tables 20 financial ratios are computed and the hypotheses of the study are tested by means of these ratios. The ratio analysis interrelate financial items and help to monitor the financial

[2] 1-50 employees, small sized; 51-150 employees medium sized enterprise.

situation of the firm. Ratio analysis method is one of the oldest and most proper methods to summarize financial data and evaluate the performance of the firms. The ratio method do not only evaluate the past and current situation of the firm, but also is used for planning and control (Ekşi, 2007:90).

5. Application

This study is basically aimed to determine how the firms which are defined as SMEs, are affected by crises and act in crises process. Depending upon the firms to be small or medium scaled, the pre-crisis terms are compared with crisis term and the crisis terms are compared with post-crisis term. It is determined that the differences between terms take their source from which variables. To examine the relationship between scales of the firms and financial ratios in crisis process, the answers of these questions are looked for: firstly, are there any differences between pre-crisis and crisis, or post-crisis and crisis ratios; if there are, which ratios are they?

The basic hypotheses are:

H0: There are no differences between pre-crisis and crisis ratios and post-crisis and crisis ratios in point of scales of the firms.

H1: There are differences.

By the reason of not having more than 2 groups, paired-sample t-test is employed to test these hypotheses. The aim is to compare the situations in different times of the same sample group (AK, 2005:77).

Table 1: The Comparison of the 2006 and 2008 Years Ratios of Medium-Sized Firms

Variables	**t**	**Sig.**
current ratio	-1,133	0,294
acit-test raito	-0,366	0,725
liquid assets ratio	-1,833	0,109
financial leverage ratio	0,567	0,589
equity/assets	0,649	0,537
short term liabilities/assets	0,076	0,942
long term liabilities/assets	1,032	0,336
liability/equity	-1,438	0,194
short term liabilities/liabilities	-0,186	0,858
property plant and equipment/liabilities	-1,084	0,314
paid up capital/equity	-0,296	0,776
stock turnover (net sales/average stock)	1,121	0,299
accounts receivable turnover	1,211	0,265
asset turnover	1,691	0,135
capital turnover	1,376	0,211
current assets turnover	1,192	0,272
net profit/equity	2,028	0,082
business profit/net sales	0,987	0,357
financial expenses/net sales	0,45	0,667
net profit/net sales	1,182	0,276

Source: Authors's calculations

According to t-tests net profit/equity ratio is seen as significant variable on the %10 level of significance. It means that equity share in net profit of the firms are changed. So H_1 hypothesis is accepted.

Table 2: The Comparison of the 2007 and 2008 Years Ratios of Medium-Sized Firms

Variables	**t**	**Sig.**
current ratio	-0,886	0,405
acit-test raito	0,207	0,842
liquid assets ratio	-0,822	0,438
financial leverage ratio	1,09	0,312
equity/assets	-0,262	0,801
short term liabilities/assets	0,177	0,865
long term liabilities/assets	0,793	0,454
liability/equity	-0,244	0,814
short term liabilities/liabilities	-0,538	0,607
property plant and equipment/liabilities	-0,551	0,598
paid up capital/equity	-1,481	0,182
stock turnover (net sales/average stock)	1,095	0,310
accounts receivable turnover	1,592	0,156
asset turnover	1,644	0,144
capital turnover	2,099	0,074
current assets turnover	2,04	0,081
net profit/equity	2,05	0,080
business profit/net sales	1,396	0,205
financial expenses/net sales	1,698	0,133
net profit/net sales	1,468	0,186

Source: Authors's calculations

As seen in Table 2 capital turnover, current assets turnover and net profit/equity ratios are observed as significant variables on %10 level of significance. These ratios are different in 2007 from crisis year in middle-sized firms and H_1 hypothesis is accepted.

Table 3: The Comparison of the 2009 and 2008 Years Ratios of Medium-Sized Firms

Variables	**t**	**Sig.**
current ratio	-0,229	0,826
acit-test raito	1,209	0,272
liquid assets ratio	-0,018	0,986
financial leverage ratio	-0,436	0,678
equity/assets	2,814	0,031
short term liabilities/assets	-0,304	0,771
long term liabilities/assets	-0,174	0,867
liability/equity	-0,791	0,459
short term liabilities/liabilities	-0,064	0,951
property plant and equipment/liabilities	-0,817	0,445
paid up capital/equity	0,799	0,455
stock turnover (net sales/average stock)	0,492	0,64
accounts receivable turnover	1,011	0,351
asset turnover	1,784	0,125
capital turnover	1,85	0,114
current assets turnover	1,676	0,145
net profit/equity	0,938	0,385
business profit/net sales	0,839	0,434
financial expenses/net sales	-0,53	0,615
net profit/net sales	1,088	0,318

Source: Authors's calculations

The only equity/assets ratio in financial ratios of 2007 is changed and is accepted as significant variable in the %5 level of significance. It means that; the ratio that presents how amount of total assets are financed from equity is changed.

Table 4: The Comparison of the 2010 and 2008 Years Ratios of Medium-Sized Firms

Variables	**t**	**Sig.**
current ratio	-0,841	0,428
acit-test raito	1,351	0,219
liquid assets ratio	-1,086	0,313
financial leverage ratio	0,283	0,786
equity/assets	0,743	0,482
short term liabilities/assets	1,132	0,295
long term liabilities/assets	-1,283	0,24
liability/equity	-0,639	0,543
short term liabilities/liabilities	1,461	0,188
property plant and equipment/liabilities	-0,821	0,439
paid up capital/equity	-0,518	0,62
stock turnover (net sales/average stock)	2,271	0,057
accounts receivable turnover	-2,241	0,06
asset turnover	2,065	0,078
capital turnover	1,536	0,168
current assets turnover	2,022	0,083
net profit/equity	1,547	0,166
business profit/net sales	0,76	0,472
financial expenses/net sales	1,09	0,312
net profit/net sales	1,06	0,324

Source: Authors's calculations

According to t-test results in Table 4, stock turnover, accounts receivable turnover, asset turnover and current assets turnover ratios are determined as significant variables on the %10 level of significance. There are more differences in 2010 according to 2009. H_1 is accepted.

Table 5: The Comparison of the 2006 and 2008 Years Ratios of Small-Sized Firms

Variables	**t**	**Sig.**
current ratio	-1,516	0,18
acit-test raito	-2,27	0,064
liquid assets ratio	-0,999	0,356
financial leverage ratio	0,551	0,602
equity/assets	-0,551	0,602
short term liabilities/assets	-0,728	0,494
long term liabilities/assets	-0,413	0,694
liability/equity	0,497	0,637
short term liabilities/liabilities	1,108	0,31
property plant and equipment/liabilities	1,333	0,231
paid up capital/equity	0,996	0,358
stock turnover (net sales/average stock)	-0,843	0,432
accounts receivable turnover	-0,336	0,748
asset turnover	-3,004	0,024
capital turnover	-1,158	0,291
current assets turnover	-2,653	0,038
net profit/equity	-0,725	0,496
business profit/net sales	-0,696	0,512
financial expenses/net sales	-1,836	0,116
net profit/net sales	0,431	0,681

Source: Authors's calculations

According to test results in Table 5, acit-test ratio is seen as significant variable on the %10 level of significance, asset turnover and current assets turnover ratios are significant variables on the %5 level of significance. In short, these ratios changed in crisis term. So H_1 hypothesis is accepted.

Table 6: The Comparison of the 2007 and 2008 Years Ratios of Small-Sized Firms

Variables	**t**	**Sig.**
current ratio	-1,79	0,117
acit-test raito	-1,969	0,09
liquid assets ratio	0,979	0,36
financial leverage ratio	1,615	0,15
equity/assets	-1,615	0,15
short term liabilities/assets	0,664	0,528
long term liabilities/assets	0,645	0,54
liability/equity	0,856	0,42
short term liabilities/liabilities	-0,119	0,908
property plant and equipment/liabilities	1,945	0,093
paid up capital/equity	0,87	0,413
stock turnover (net sales/average stock)	-1,132	-0,295
accounts receivable turnover	-2,217	0,062
asset turnover	0,164	0,875
capital turnover	-1,263	0,247
current assets turnover	0,498	0,634
net profit/equity	3,002	0,02
business profit/net sales	1,208	0,266
financial expenses/net sales	-0,266	0,798
net profit/net sales	2,881	0,024

Source: Authors's calculations

According to the results of analysis, in small-sized firms acid-test, property plant and equipment/ liabilities and accounts receivable turnover ratios of 2007 are accepted to be changed on the %10 level of significance and net profit/equity and net profit/net sales ratios are accepted to be changed on the %5 level of significance.

Table 7: The Comparison of the 2009 and 2008 Years Ratios of Small-Sized Firms

Variables	**t**	**Sig.**
current ratio	-1,559	0,163
acit-test raito	-1,845	0,108
liquid assets ratio	3,179	0,016
financial leverage ratio	0,159	0,878
equity/assets	-0,238	0,819
short term liabilities/assets	-0,757	0,474
long term liabilities/assets	-0,096	0,926
liability/equity	0,549	0,600
short term liabilities/liabilities	0,192	0,853
property plant and equipment/liabilities	0,644	0,540
paid up capital/equity	0,578	0,581
stock turnover (net sales/average stock)	-1,92	0,096
accounts receivable turnover	-0,75	0,478
asset turnover	-1,308	0,232
capital turnover	-1,517	0,173
current assets turnover	-1,628	0,147
net profit/equity	-4,06	0,005
business profit/net sales	-1,241	0,255
financial expenses/net sales	-1,781	0,118
net profit/net sales	-1,598	0,154

Source: Authors’s calculations

As seen in Table 7, liquid assets and net profit/equity ratios are determined as significant variable on %5 level of significance and stock turnover ratio is accepted as significant variable on the %10 level of significance.

Table 8: The Comparison of the 2010 and 2008 Years Ratios of Small-Sized Firms

Variables	**t**	**Sig.**
current ratio	-1,459	0,188
acit-test raito	1,438	0,194
liquid assets ratio	1,651	0,143
financial leverage ratio	-0,104	0,920
equity/assets	0,104	0,920
short term liabilities/assets	-1,031	0,337
long term liabilities/assets	0,763	0,471
liability/equity	-0,841	0,428
short term liabilities/liabilities	-0,091	0,930
property plant and equipment/liabilities	-1,659	0,141
paid up capital/equity	-2,066	0,078
stock turnover (net sales/average stock)	-1,966	0,090
accounts receivable turnover	-2,043	0,080
asset turnover	-1,509	0,175
capital turnover	-1,288	0,239
current assets turnover	-1,822	0,111
net profit/equity	-2,042	0,081
business profit/net sales	0,758	0,473
financial expenses/net sales	0,997	0,352
net profit/net sales	-1,027	0,339

Source: Authors's calculations

According to the test results in Table 8, paid up capital/equity, stock turnover, accounts receivable turnover and net profit/equity ratios are accepted as significant variables on the %10 level of significance. So H_1 hypothesis is accepted.

6. Conclusions

The results obtained from t-tests by grouping firms according to their sizes can be arrayed as seen below:

- It is seen that the ratios of small-sized firms show more changes than middle-sized firms.
- The ratio that shows the best change is net profit/equity ratio. It presents equity share in net profit of the firms.
- The usage rate of liability increased after crisis in both small-sized and middle-sized firms. When accounts receivable turnover ratio is examined it is seen that this ratio increased in post-crisis term. It shows that small-sized firms are increased their liquidity. But it is observed that profitability ratios of medium-size firms are higher than small-sized firms and SMEs increased their liquidity levels in crisis term.
- Middle-sized firms are less affected from crisis than small-sized firms. While small-sized firms are generally managed traditionally with family business status, they fall behind to make professional provisions against crisis.

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