Before and After the Economic Crisis: Changes in Financial Ratios of the Self-employed Households

Mi Kyeong Bae, Keimyung University
Sherman Hanna, The Ohio State University
Eunyoung Baek, Sungkyunkwan University

Introduction

The decision on financial aid to Korea from the International Monetary Funds on December 5th in 1997 has brought about tremendous changes in economy and industry in terms of macroeconomic polices, finance, and labor market. During the period, many corporations have shut down their business, resulting in the increases of unemployment and job insecurity. This unstable situation has many households in Korea gone through financial problems and declared personal bankruptcy. Recently, the Korea government administrators start to establish the policy to resolve households' financial difficulties. To provide the relevant information in making effective policy, it is important to examine the income and asset structure of the self-employed before and after the economic crisis, and to understand the consumption and investment behavior of the self-employed during the period. It is also important to investigate the effects of economic recession to the financial asset structure of the self-employed.

During the past decades, the self-employed play a significant role in national economy in Korea. Since the crisis, their effects are even increasing. In general, the self-employed are more responsive to macroeconomic changes compared to the salaried workers (non self-employed). The unemployment status of the self-employed, thus, needs to be reflected carefully when establishing national economic policy.

However no financial ratio guideline developed specifically for Korea The purpose of this study is to examine the changes in financial structure of the self-employed brought by the economic crisis in Korea. The results will provide implications for policy makers to establish appropriate policy for the self-employed and help them financially survive. The financial ratios analysis for the self-employed, compared to the salaried workers, will provide more rigid information for establishing financial policy since it allows researchers to examine the changes in more fluctuated financial structure of the self-employed in macroeconomic basis. For this, the financial ratios is used in this study to compare the changes in financial structure of the self-employed before and after the economic crisis.

Review of Literature

The Economic Changes after the Economic Crisis

The changes after the economic crisis can be summarized with respect to unemployment rate, the polarization of wealth, and high inflation and interest rates. First, after the economic crisis, companies' restructuring and downsizing efforts greatly increased unemployment rate in Korea. For example, the unemployment rate in 1998 was nearly 5%, which was two times of unemployment rate in 1997 and scored the highest rate after 5.2% in the 80's recession due to the oil shock (Samsung Economic Research Institute, 1997). In particular, the rate of the self-employed to overall national unemployment increased more during the economic downturn (Hwang & Joo, 1999). After all, the economic changes after the economic crisis destabilized the financial structure of households in Korea.

Second, the polarization of wealth increases in the number of households at the highest and the lowest classes, but decreases in the middle classes. After the economic crisis, the consumption level of the highest class increased as the number of homeless rapidly increased (Lee & Kim, 1998). After the economic crisis, decreases in income and increases in unemployment aggravated the polarization of wealth in Korea.

Third, high inflation and high interest rates were one of the significant changes after the crisis. For example, consumer price index showed a rapid increase in consumer price level indicating 109.6 in 1997 and 121.0 in 1998, compared to 100 in 1995 as a basis. The high inflation and interest rates decreased the domestic demands and investments in business activity.

Review of literature on financial ratios

Financial ratios are designed to assess the financial status and strength of corporations by comparing one aspect and the others in financial statement (Part, 1997). Since financial ratios compare more than two financial aspects, it is utilized for assessing financial status of households. An analysis of financial ratios help households achieve financial goals by suggesting an appropriate savings and investment methods. The analysis result is useful for counseling a household by assessing the household's financial status (DeVaney, 1993). Although the raw information such as level of income, expenditure, and asset and debt are useful to assess the financial stability of households, they cannot provide specific information on asset and debt structure as well as information on the preparation for emergency (Hong & Swanson, 1995). According to Lytton, Garman, and Porter (1991), financial ratios provide insight on financial statement and make it easy to analyze several aspects of financial status.

No single ratio can provide an absolute guideline for assessing financial strength; various types of financial ratios need to be used to assess the comprehensive financial well-being of households depending on the purpose of the analysis (Quinnn, 1987; Radner, 1992). However, several studies examined empirical data to suggest the most useful financial ratios in assessing the financial status of households. Prather (1987, 1990) suggested the five financial ratios which were the most useful ratios: monthly expenditure to liquid asset ratios, debt to liquid asset ratio, non-mortgage debt to liquid asset, annual short-term debt repayments to liquid asset, and the sum of net worth and real asset minus the value of house to net worth. DeVaney (1994) suggested that liquidity ratio, debt to asset ratio, and debt service ratio were important in predicting household insolvency.

Methodology

Data and Sample

This study used a 1997 and 1998 Korean Household Panel Study collected by Daewoo Economic Research Institute. The total number of households in KHPS was 2,724 in 1997 and 2,468 in 1998, respectively. Only the self-employed were included in this study, resulting in 692 households in 1997 and 600 households in 1998.

Measurement of the Variables

The self-employed were measured to find if a household ran its own business including sales and services industry. This study used four categories of financial ratios: income to expenditure ratio, liquidity ratio, debt ratio, and capital accumulating ratio. Among the four categories of financial ratio, liquidity ratio was measured with three financial ratios and debt ratio was measured two financial ratios. The detailed measurement of the financial ratios is shown in Table 1.

Table1.
Measurement of financial ratios

1) Income to expenditure ratio	
Monthly Average expenditure/ Monthly Average disposable income	Guideline was set at 1.0 level since excess of 1.0 implies that the cost of living exceeds disposable income.
2) Liquidity ratio	
Liquid Asset/ Monthly Expenditure	Each household is recommended that liquid asset to monthly expenditure ratio exceed 3.0 because of emergency fund to last 3 to 6 months of expenditure.
Liquid Asset/ Annual disposable income	Measures liquidity ratio using disposable income as a substitute of average expenditure. 0.25 is suggested as a guideline meaning of 3 months, 1/4 of a year.
Liquid Asset/ Net worth	Household with should possess more than 25% of liquid asset over net worth in order to be categorized as household with liquidity.
3) Debt ratio	
Liquid Asset/ Total Debt	Indicator that shows financial capability to pay off debt of household with liquid asset.
Total Debt/ Net Worth	Shows household's ability to pay. It is recommended to be below 1.0 in order for total debt not to exceed net worth.
4) Capital Accumulation Ratio	

Investment/ Net Worth	Indicates the portion of investment asset over net worth. Which is recommended to exceed 0.2

Data Analysis

Using SAS statistics package, the mean and percentage were used to compare the changes in financial ratios of the self-employed between 1997 and 1998. The mean values of financial asset structure were used to examine changes between 1997 and 1998.

Results

Changes in the Characteristics of the Sample

The results showed that the number of households whose income with below 1 million won increased and the number of households in the middle income class decreased in 1998, compared to 1997. In terms of age change, the percentage of the households between 25 to 35 years old decreased in 1998, compared to 1997. The level of education did not show much difference during those two years. However, the number of households living in Seoul area tremendously increased and the number of households living in 5 big cities other than Seoul and small cities relatively decreased in 1998, compared to 1997. Among the sample, most of the households (more than 90%) were married households.

Changes in Financial Structure of the Self-employed due to the Economic Downturn

The changes in financial structure of the self-employed are presented in Table 3. The financial structure consists of assets in banks or other types financial institutions, stocks, bonds, insurance, gye, personal loan, real estate, and debts (e.g., loan from banks or other type of financial institutions). The results showed that, in 1998, assets in banks and stock ownership decreased whereas assets in bonds and real estate increased. In terms of debt, loan from other types of financial institutions increased compared to loan from banks after economic crisis.

In 1997, the average income of the self-employed households exceeded the average expenditure. However, after the crisis, the average expenditure slightly exceeded the average income. This indicated that although the average expenditure decreased in 1998, the decreases in average income were greater than the average expenditure.

Table 2.

Change in Characteristics of Self Employed household (Unit : Mil. Won)

Demographic Characteristics		**1998**		**1998**	
		Frequency	**%**	**Frequency**	**%**
Income	Under 100	163	23.6	232	38.7
	100~200	303	43.8	250	41.7
	200~300	157	22.7	79	13.2
	300~400	34	4.9	17	2.8
	Over 400	35	5.1	22	3.7
Age	**25~35**	135	19.5	93	15.5
	35~45	319	46.1	258	43.0
	45~55	142	20.5	142	23.7
	55~65	77	11.1	81	13.5
	Over 65	19	2.7	26	4.3
Education	**None**	30	4.4	20	3.4
	Elementary School	84	12.2	68	11.4
	Junior High School	109	15.8	103	17.2
	High School	315	45.5	271	45.2
	2-year College	54	7.8	48	7.9
	Under (graduate)	100	14.4	90	14.9
Geographic Area	**Seoul (Capital)**	272	39.3	279	46.5
	5 Large cities	158	22.8	111	18.5
	Mid-City	186	26.9	108	18.0
	Small town	76	11.0	102	17.0
Marital	**Married**	649	93.5	560	93.3

Status	**Single**	12	1.7	11	1.8
	Other	30	4.5	29	4.9
Total		692		600	

Changes in Financial Ratios the Self-employed due to the Economic Downturn

In terms of the changes in expenditure to income ratio showed that 57% of the households met the suggested guideline in 1997 while less than half (45.5%) of the households met the guideline in 1998; hence, the households that met the expenditure to income ratio guideline decreased by 11.6% after the economic crisis. This result suggested that income drop was greater than expenditure cut during these periods rather than the level of expenditure increased after the crisis.

The liquidity of the self-employed households was measured using three ratios: liquid asset to monthly expenditure and liquid asset to disposable income to measure short-term liquidity and liquid asset to net worth to measure long-term liquidity. The percentage of households that met the liquid asset to monthly expenditure ratio was decreased by 6.1% from 54.3% in 1997 to 48.2% in 1998. Also, the percentage of households that met the liquid asset to disposable income ratio was decreased by 8.8% from 78% to 69.2% after the economic crisis. In terms of long term liquidity, the percentage of households that met liquid

Table 3.
Change in Asset Structure of the Self Employed

Type of Asset	**Average Holding Amount (Unit, U.S. dollars)**		
	1997 (%)	**1998 (%)**	Change in Composition
Commercial Bank	9814.7 (22.5)	8185 (15.7)	-
Other type of Financial Institutes	2272.2 (5.2)	2351.4 (4.51)	-
Securities	723.2 (1.66)	501.5 (096)	-
Stock	18.2 (0.04)	594.5 (1.14)	+
Bonds	168.9 (3.87)	136.5 (0.26)	-
Insurance	2752.6 (6.31)	6156.5 (11.8)	+
Real Estate	26,337.2 (60.4)	36,688.6 (70.4)	+
Private Loan	1683,3 (3.86)	1851.4 (3.55)	-
Total Asset	**43,770.3(100.0)**	**56,465.4(100.0)**	
Debt on Bank	11926.9 (75.63)	11797.6 (66.10)	-
Debt on Other Financial Institute	3509.8 (22.26)	5608.5 (31.42)	+
Installment and Accounts Payable	337.2 (2.11)	443.0 (2.48)	+
Total Debt	**15770.1**	**17849.1**	
Current Asset	17264.2	15404.4	
Net Worth	27831.3	34243.9	
Investment	12997.3	34380.3	
Income	2269.6	1833.2	
Expenditure	2067.1	1901.5	

asset to net worth ratio decreased by 6.3% after the crisis. Therefore, both the short-term and long-term liquidity of self-employed households decreased after the economic crisis, indicating the difficulty of financing of the self-employed households during the economic downturn. This result suggested that banks or other financial institutes need to manage their credit line for the self-employed with flexibility and efficiency depending on the credit rating of the self-employed.

The changes in burden of debt between 1997 and 1998 were measured using liquid asset to total debt ratio and total debt to net worth ratio. Although households that met liquid asset to total debt ratio decreased 7.3%, households that met total debt to net worth ratio increased by 1% after the crisis. Due to the increase in real estate in net worth and decrease in liquid asset, households that met liquid asset to total debt fell while those that met total debt to net worth rose.

In order to measure the level of capital accumulation, investment asset to net worth ratio was used. The capital accumulation ratio indicated the progress toward financial goals. Due to the economic

downturn, investment asset to net worth ratio of the self-employed decreased by 5.7% after the economic crisis. This result indicated the decline of stock market after the economic crisis.

Table 4.
Analysis of change in financial ratio of self-employed

Financial Ratio	Guideline	Median		% meeting		Change
		1997	1998	1997	1998	
Ratio 1	<1.0	1	1.12	57.1	45.5	-11.6
Ratio 2	>3.0	3.35	2.89	54.3	48.2	-6.1
Ratio 3	>0.25	3.55	3.34	78.0	69.2	-8.8
Ratio 4	>0.25	2.00	1.85	83.5	77.2	-6.3
Ratio 5	>0.1	1.00	0.45	60.5	53.2	-7.3
Ratio 6	<1.0	0.00	0.00	94.5	95.5	+1.0
Ratio 7	>0.2	1.00	1.00	54.5	48.8	-5.7

Conclusion and Implications

This research analyzed overall changes in financial structure between year 1997 and 1998, the periods when showed extreme economic changes, to assess how economic downturn affected the asset structure and financial ratio of the self-employed households.

Compared to the full-time employees, the self-employed households are more responsive to the macroeconomic changes because of their irregular income; thus, the statistical interpretation of change in asset structure would be helpful for establishing economic policies.

The results are summarized as follows: The average amount of holding each type of asset showed that the investment of the self-employed households was decreased in banking industry and stock market in 1998 compared to 1997. On the other hand, investment in bond and real estate was increased, which implied preference to the stable type of asset with the increases in uncertainty of the future and economic instability.

In addition, devaluation of real estate allowed households easy to obtain real estate and increase in preference to investment in real estate after the crisis. The changes in financial ratio of the year 1998 shows that such ratios as income to expenditure, liquidity, and capital accumulation, decreased compared to the year 1997. Among those ratios, income to expenditure ratio showed the biggest decline because of reduced income of the self employed households. The results implied that income structure of the self-employed is unstable, thus the self-employed was likely to be greatly affected during the economic downturn. In other words, different from salaried workers, the self-employed should be able to obtain the certain level of support from the government with tax incentives or financial subsidiaries. Different from the salaried workers, the income level of the self-employed is very unstable. Hence, for the self-employed, tax should be imposed depending on the financial ratio analysis rather than their income itself. Among the liquidity ratios, liquid asset to disposable income ratio was the most decreased one, thereby resulting in the greater effect on reduced income.

In case of debt ratio, as the results indicated, the self employed had a higher portion of real estate in their net worth. This result was consistent with the previous research (Hwang & Joo, 1998), suggesting that the self-employed preferred real estate because their level of income greatly fluctuated depending on the macroeconomic situation. In addition, as expected, more than 90% of households met the guideline for the ratio 6 because the net worth included the value of current housing. However, many households in western countries possess housing with loan from banks. Therefore it is expected that their debt ratio using net worth would be lower while using the same measurement.

Even though average amount of investment asset was greatly increased in 1998, the percentage of households to meet the guideline of the capital accumulation ratio was decreased. This implies the polarization of wealth between the rich and the poor after the economic crisis in Korea.

This research focused on assessing financial ratios of the self-employed. However, for the future research, it would be useful to investigate changes in financial ratios by each group of income levels or occupation. In light of importance of the self-employed households in Korea, asset structure needs to be

analyzed more in detail before setting up economic policies such as national pension or medical insurance for the self-employed. In addition, research on changes in portfolio structure of subdivided groups of the self-employed households would be important.

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