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Household Debt, Macroeconomic Fundamentals and Household Characteristics in Asian Developed and Developing Countries

[1]S.F.Ho. Catherine, [2]Jamaliah Mohd Yusof and [2]Siti Aminah Mainal
[1]Arshad Ayub Graduate Business School, Faculty of Business Management,
Universiti Teknologi MARA, Selangor, Malaysia
[2]Faculty of Business Management, Universiti Teknologi MARA, Selangor, Malaysia

Abstract: Household debt problem is established to have initiated economic slowdown and financial crises resulting in unsustainable global financial stability. High level of household debt may result in emotional and psychological stress as well as social and family predicaments in the domestic economy. This study analyzes the determinants of household indebtedness in eight developing and developed countries in Asia. The study applies econometric analysis to ascertain the significance of the macroeconomic determinants and household characteristics on household debt. Unit root tests were carried out to prevent spurious regression. Empirical evidence suggests major differences in determinants between the two groups of countries. In developing Asian countries, household debt is most affected by macro-economic factors including interest rate, inflation rate and unemployment rate while in developed Asian countries, indebtedness is affected by consumption, working and retirement population as well as household savings.

Key words: Household debt, macro-economic fundamental, savings, consumption, Malaysia

INTRODUCTION

Household indebtedness has become an important topic of discussion due to the rapid rise in its level in many developed and developing economies over the recent decades. Household debt has become a more serious challenge as many bankruptcy cases and social problems evolve due to the inability to repay the huge commitment. It is therefore vital to investigate the current trend of debt among households as well as the factors that lead to the rise in these debts. There are many issues that will arise when household debt increase in the context of household repayment difficulties, financial insolvency stress and bankruptcy. In addition, financial and social problems usually ensues households with large debt burden. In a most recent study, bankruptcy can be seen among youth executives and most of them are below the age of 35 (Azmi and Madden, 2015). The availability of easy credit and the use of credit cards have brought about many negative side effects when they induce excessive expenditure because it is convenient for users to pay with credit card without considering affordability. As young adults have just started to work and earned only a fixed salary, easy credit results in excessive spending without realizing the consequences of their actions.

The rise in the level of household debt in Asia may be due to an increase in household asset, strong financial buffer with large percentage of liquid asset with the support of income and employment conditions on debt servicing capacities. Rise in household debt has also impacted the economic and social aspects including criminal issues, bankruptcy, family breakup, unemployment and other social problems. The increase in household debt can be due to numerous macro-economic and domestic characteristics (Turinetti and Zhuang, 2011).

Head of households become stressful and emotional due to debt problems as they struggle to pay back borrowings which may lead to family misunderstandings. Many cases of family breakup or divorce are thus related to individual and household debt crisis. In addition, the relationship between family, friends and relatives would also be affected by stress and emotional changes such as bad-temper, lack of communication, prefer to be left alone and do not get along with those around them as well as reduced self-esteem. With the lack of understanding and communication, there are many issues of divorce and family breakups.

A loss of employment is another negative effect of rising household debt. The ability of the individual to find a job is much reduced as employers may seek financial

Corresponding Author: S.F.Ho. Catherine, Arshad Ayub Graduate Business School, Faculty of Business Management, Universiti Teknologi MARA, Selangor, Malaysia

clearance of the candidate if they have ever filed for bankruptcy. In the general case of buying or renting property, the owner may also check the tenant's credit record before the lease offer. Many rental property owners are not willing to provide housing to individuals with a history of bankruptcy due to the higher level of default risk involved.

Among the lower income households with lower monthly salary, it is not uncommon to find them resorting to borrowing from illegal sources. This group of household has higher possibility of borrowing illegally because of their financial hardship especially in developing countries with less regulated financial market. When borrowers are unable to pay their debts, the creditors may try to get back their money in a criminal manner and this includes extortion, threat to murder, kidnapping and other means. This would bring about social problems as well as a rise in crime rates.

The decline in consumption by households can decelerate the country's economy in times of inflation when consumer income does not keep up with rising costs. Households which have higher debt would need to save more in order to reduce their liability. When prices of goods increase, they consume less and hence less money is being circulated in the financial system which may lead to economic slowdown. The weak demand from households reduce total spending leading to jobs disappearance and therefore higher unemployment rate while human resources are not appropriately utilized, drastically affecting the economy as a whole.

It is concluded in a recent study that depression, anxiety and anger are common experiences of too much debt within the households (Drentea and Reynolds, 2012). Meanwhile, social implications such as psychological distress (Brown *et al.*, 2005); marital instability, divorce (Fisher and Lyons, 2006) and even suicidal contemplation (Meltzer *et al.*, 2011) can be the results of too much household debt. Excessive household debt triggered the global financial crisis in the United States that results in severe worldwide financial instability. Another study revealed that the debt issue is not just particular to any one country but a global problem with high leverage levels in various sectors of developed and developing countries (Lund and Roxburgh, 2010). In the current challenging financial environment, household debt is still escalating hence causing high levels of financial anxiety. The challenge of paying down debt, be it housing, automotive, education or credit cards can be overwhelming especially in a weak financial environment. Recent stock market and currency collapses in China and the contagion effect in Asia are shaking business confidence in Asia. Coupled with the fall in commodity prices and demand for goods from developed countries in Europe and North America, the economic outlook for Asia is not too rosy in the near future. Meanwhile, the household debt situation in some emerging ASEAN countries also denotes substantial increase for the past few years (Nakornthab, 2010). In emerging ASEAN countries, the increasing trend of household debt relative to disposable income has been worrisome. According to the McKinsey Global Institute, Malaysia emerged as the highest household debt country in the region with 146% of household debt to income; South Korea at 144 and Thailand at 121% in 2014. US household debt to income ratio was 130% when the subprime crisis began.

Literature review: The level of household debt can be explained by both the macroeconomic and life-cycle theories. Keyne's analysis laid the basis for the field of macroeconomics which treats the economy as a whole and focuses on government's use of fiscal policy. Keynesian economists postulated that increasing consumption results in increasing economic activity and growth, a macroeconomic effect. Creative innovations to consumption practices over the past few decades have however potentially proved hazardous. Overall global consumption has increased at a much faster pace than disposable income while domestic savings have remained relatively constant. It can be narrowed down to have been caused by a drastic increase in consumption through relatively cheap credit and households are consuming beyond their means.

The life cycle hypothesis proposes that household savings and consumption reflect the life-cycle stage of households and that consumption is a linear function of available cash and the discounted value of future income (Ando and Modigliani, 1963). If income was to increase in the future during working years and decline at retirement, households tend to borrow when they are young, save during middle age and spend down during retirement (Yilmazer and Vaney, 2005) Thus, the amount of household debt will increase during the younger age of the household.

The increase in household borrowing is highly related to the interest rates and a study conducted on the US concluded that much of the rise in household debt in the 1990s can be clarified by interest rate factor. When bank offers cheaper borrowing, it would indirectly increase total borrowings by individuals and households. Much of the boost in household borrowing can thus be explained by the combination of declining interest rates, in both real and nominal terms and financial deregulation. It is expected that there exists a negative relationship between interest rate and household debt. Inflation rate is also one of the determinants of household consumptions and debt. A study examined the influence of inflation, taxes and debt-service constraints on aggregate household debt levels and discovered that changes in inflation and liquidity constraint can result in changes in debt (Debelle, 2004). The decline in inflation has two effects on household borrowing. Firstly, the reduction in borrowing costs has allowed a greater number of households to borrow and therefore increase the average level of debt per household. Secondly with lower inflation, the real value of the debt is not eroded as quickly. If inflation rates have fallen, the associated decline in nominal borrowing rates has allowed households to borrow larger amounts for a given limit of debt service.

Household income also plays an important role in influencing the level of household debt. Household debt is closely related to household income since household's demand for housing is positively related to income (Crawford and Faruqui, 2011). When household income increases, it would increase household debt especially household mortgage. On the other hand another study investigated the characteristics in Sweden and found that 40% of the debt is from the high household income (Debelle, 2004). Furthermore, the largest and most significant negative shock to household income is unemployment as it would be difficult to maintain mortgage payments through a period of joblessness.

Researchers have also found that one of the major determinants of household debt is house prices and it is a common factor that influences the rise of household debt for most countries. It is indicated that house prices measured by housing price index have positive effect on household debt (Turinetti and Zhuang, 2011). When house prices increase, household debt would also increase. In order to purchase a house, consumers need to take up loans and hence household debt is directly affected.

Another factor that influences household debt is the working age population and the higher percent of working age population resulted in an increase in household debt (Turinetti and Zhuang, 2011). On the other hand, higher percentage of retiring age population relates to a lower level of household debt as the retiring age population is assumed to be more conservative about consumption and borrowing. Increase in household insolvency is caused by an increase in consumption, a decline in nominal wages as well as an increase in unemployment. Household savings is the balance between current income and current consumption (Berry *et al*., 2009). The theory of modern savings explains that household spending is related to their expected permanent-income. Household savings and household debt are therefore negatively related to each other.

Table 1: Variables and measurements

Variables	Proxy
Household Debt (HHD)	Loan outstanding to private household
Interest Rate (IR)	Bill lending rate
Inflation (INF)	Consumer Price Index (CPI)
Housing Price Index (HPI)	Housing price index
Unemp loyment (UR)	Unemployment rate
Household Income (HDI)	Household disposable income
Working Age (WAP)	Working age population
Retiring Age (RAP)	Retiring age population
Aggregate Consumption (ACC)	Gross Domestic Product (GDP)
Household Savings (HS)	Household saving

MATERIALS AND METHODS

The investigation on household debt of eight developing and developed Asian countries include Malaysia, Indonesia, Singapore, Philippines, Thailand, South Korea, Japan and Taiwan with data from 1990-2012. Time series statistics are collected from Central Banks, Department of Statistics and the World Bank. The data series for each factor and expected relation are shown in Table 1. This study investigates the effects of macroeconomic as well as household characteristics related determinants on household debt as follows:

$$\begin{aligned} HHD_{it} = \ & c + d_1IR_{it} + d_2INF_{it} + d_3HPI_{it} + \\ & d_4UR_{it} + d_5HDI_{it} + d_6WAP_{it} + \\ & d_7RAP_{it} + d_8ACC_{it} + d_9HS_{it} + \lambda \end{aligned}$$

In order to ensure that the variables exhibit stationarity so as to avoid the model from producing spurious regression results, the variables are transformed through the measure of computing the percentage changes. This study utilised the Augmented Dickey-Fuller (ADF) unit root tests to confirm that the time series applied in this study is stationary. Variance Inflation Factor, White tests and Newey-West corrections are performed for any issue relating to multicollinearity, autocorrelation or heteroscedasticity.

RESULTS AND DISCUSSION

The empirical evidence on the determinants of household debt for this group of Asian developing and developed countries is provided in Table 2. Results for Malaysia indicate that disposable income and household savings have significant positive relation with household debt. When disposable income and household savings increase, households are in a better financial position to acquire assets thus increasing the level of debt (Crawford and Faruqui, 2011). In contrast, this study finds significant negative relation between consumer consumption and household debt where household debt

Table 2: Individual country results on household debt

Variables	Malaysia	Indonesia	Thailand	Philippines	Singapore	Taiwan	South korea	Japan
IR	-0.0430	0.2120	0.0320*	2.8790*	0.0010	-0.4870***	-1.0390**	-0.8900
INF	0.0140	-1.6670***	-0.0220**	-37.1770**	0.0570	0.0010	0.3990*	-6.5870
HPI	0.0540	-0.3870	0.0320**	19.2270	-0.4740	-0.3110	0.0090	-3.1770
UR	-	0.8760	0.6430**	-2.7390	-0.2560**	-0.0840	-0.5040	-2.0850**
ACC	-0.0040*	-0.0210	1.1220	5.0110	-0.3690	0.0220**	0.0050*	-0.0250
HDI	0.1600*	-	-0.0210	12.4670	-0.1090	-6.6400	-6.9270*	4.1410
WAP	-2.5160**	1.2610	0.0020	-6.2970	-0.0210	0.0003	-3.1540	9.8140**
RAP	-0.0010**	-5.4110	-9.2910	-110.4620	-0.4330	4.4500*	0.0060**	1.6650
HS	0.2760**	0.0290**	-0.0010	2.7310	-0.1240	-0.0010	0.4350*	1.5580**
C	-1.8510**	0.5900	0.5440	4.6500*	0.4600**	-0.0980	-0.5260	-166.1010
Adj. R^2	0.887	0.798	0.433	0.885	0.730	0.691	0.9960	0.7040
F Prob.	0.025**	0.006***	0.042**	0.003***	0.0020***	0.010***	0.062*	0.091*

Robust standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.1

increases when household consumption falls. This may indicate that when households are facing difficulties, they need to reduce consumption and some may even resort to debt. Working and retirement age population are negatively related to household debt and when there is more people at work, there is less need for debt in this country. Similarly when retired population increases, there is less household debt which is in line with the life cycle hypothesis where retired population used up their savings and normally do not incur much debt (Turinetti and Zhuang, 2011). It is interesting to note that macroeconomic factors including interest rate, inflation rate, housing price index are not found to be significant for this country relative to others (Table 2).

The results for Indonesia indicate that inflation and household savings have significant relation with household debt. There is negative significant relation between inflation and household debt where higher inflation in this country reduces the household's ability to borrow which is consistent with literature (Debelle, 2004). On the other hand, higher level of savings increases debt for Indonesian households. Consistent with the results from Malaysia, higher savings level would enable households to be able to acquire assets therefore resulting in higher household debt.

Macro-economic fundamentals appear to be driving household debt in Thailand. Household debt is significantly affected by interest rates in Thailand and the Philippines. Higher interest rate is correlated to more borrowings in these countries. This indicates that when the economy is performing well, interest rate and consumer spending increase resulting in higher household debt. In addition, there is also significant negative relation between inflation rate and household debt for Thailand and the Philippines similar to the results from Indonesia. In addition, house prices and unemployment rate are both positively related to debt in Thailand. Higher house prices and higher unemployment push households in Thailand to borrow more. This is especially true when house prices increase, mortgage value would increase in line with prices and households would have to secure a higher level of debt. Temporary unemployment situation would also compel households to increase debt when they have to maintain their current living standards. It is surprising to note that for the more developed country of Singapore only unemployment is found to be significant in affecting household debt. The other macroeconomic and country specific factors are all not found to have significant relation with household debt in Singapore. Cultural factor can play a significant role in household borrowings where it is not the cultural practice of the majority of Singaporeans to borrow unnecessarily for consumer consumption. Whenever unemployment is high, there would definitely be lower ability to service debt and thus household debt falls.

For the developed countries of Taiwan and South Korea, debt level is negatively affected by interest rates. Lower interest rate induces more borrowings in these countries. This is different from the effects in developing countries. When interest rate is higher, cost of borrowing increase and thus the ability to incur debt is lower in both of these countries. It is interesting to note that from household characteristics, aggregate consumption directly affects household debt in both Taiwan and South Korea. For these developed nations, higher consumption would result in higher debt level in contrast to the results found for developing country. Disposal income is also found to be negatively related to debt in South Korea while higher retirement population reduces debt. These are the golden age population that live off their savings and should not be leverage dependent anymore. Similar result is also found for Taiwan on retirement population.

This study found positive significant relation between working age population and debt for Japan in accordance to the life-cycle hypothesis of higher demand for debt when there is an increase in working population. Consistent with theoretical understanding, larger household savings also leads to higher debt level in Japan and South Korea. Similar to the results in Singapore, Japan's unemployment rates also have negative significant impact on household debt. Higher unemployment reduces the ability of households to borrow.

In summary, developing countries' household debt is significantly affected by macroeconomic factors including interest, inflation and unemployment rate while developed countries' household debt are more affected by consumption, working and retirement population as well as household savings.

CONCLUSION

The issue on this rapid rise in global household debt needs to be tackled critically. Extreme level of household debt has created tremendous problems for large and small economies alike and it can cause serious financial catastrophe that not only drastically affect the home country but it can also be contagious to others. This type of spending beyond the consumer's means attitude has become a new challenge for developed and developing countries and it has become a worldwide problem that has severe effects on the stability and sustainability of development and financial markets. This study investigated the macroeconomic and household characteristic determinants of household debt for few Asian countries where Thailand and Malaysia recorded the highest percentages (155 and 124%) of household debt to GDP in 2014. These countries' alarming figures may indicate that households are borrowing more than what they earn and the lower income group are most at risk of default.

It is interesting to note that empirical findings from this study indicates that some factors are more important in determining debt in developing then developed countries and their effects are not similar for the two sets of countries. In summary, the household debt level in developing countries including Thailand, Indonesia and the Philippines is mostly significantly related to macroeconomic factors including interest rate, inflation and unemployment rate. Meanwhile, household debt level for developed countries including Taiwan, South Korea and Japan is much affected by household characteristics including disposable income, consumption, working and retirement population and household savings.

In essence, it is important to investigate factors that lead to the rise of household debt in each country. Better understanding of the determinants in this area with insight knowledge on the causes of unsustainable household indebtedness is of great importance to policy makers and relevant authorities in these Asian countries. The appropriate authorities would be able to take necessary actions to influence and control household debt level before any drastic financial crisis sets in. Households must have the ability to manage and plan their financial expenditure effectively. Knowledge on how to plan household personal finance is important in order to ensure household debt is sustainable thus reducing the burden of having to set aside large amounts of money to pay off debts or risk defaulting on the debt, especially among youth.

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