

# CHAPTER 1

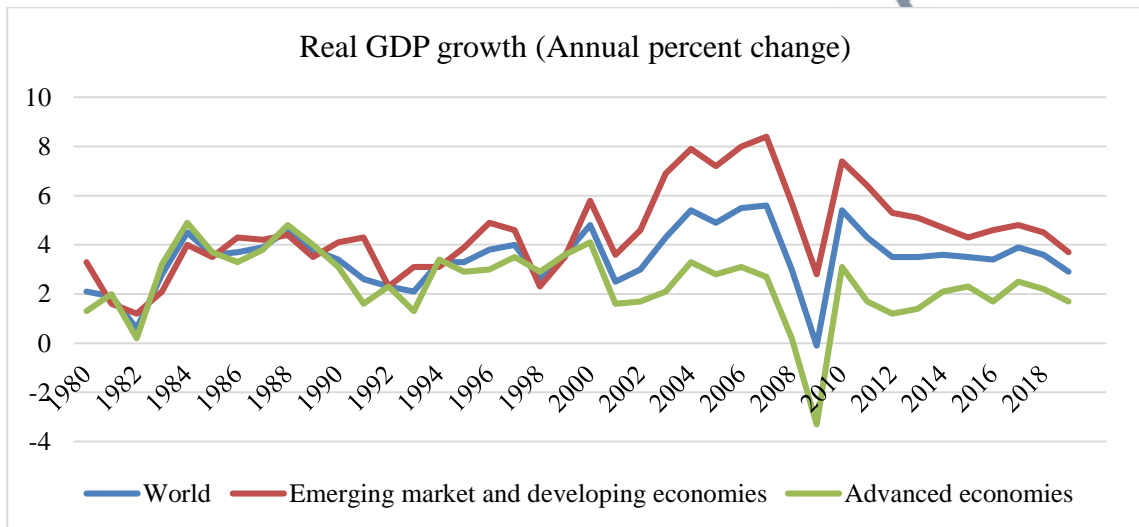
## INTRODUCTION

### 1.1 Introduction

The rapid increase in household debt has raised concerns over its influence on economic growth. The life-cycle theory of consumption and permanent income hypothesis (PIH) postulate that households smoothen their consumption by borrowing with the assumption of increased expected future income, which in turn increases the aggregate output and boosts the economic growth. However, rapidly increasing household debt puts a country's economic health at risk (Bahadir & Valev, 2020; Cecchetti et al., 2011; Park et al., 2018). Debt was also claimed as the cause of the economic slowdown which dragged the 2008 financial crisis as it overhung in balance (Eggertsson & Krugman, 2012). The slowdown was particularly pronounced in countries where the monetary policy was constrained. Agarwal et al. (2014) and Campbell (2006) are among those who argued for lax lending practices among financial institutions. Justiniano et al. (2016) added that the regulation on subprime borrowing was rather lenient. In addition, extensive empirical findings have shown that household debt coupled with escalating house prices contribute to economic slowdown (Alter & Mahoney, 2020; Kojen et al., 2009; Mian et al., 2016). Meanwhile, others contend that the unfavourable household debt-growth nexus is driven by financial development.

Figure 1.1 shows that the real output growth between 1980 and 2019 plummeted to the lowest point at the aftermath of the 2008 global financial crisis. This level of world output growth, the worst of many decades, is also known as the Great Recession and

originated from the (United States) US subprime mortgage crisis in 2007. “A little leak will sink a great ship” is the best proverb to describe how household debt impeded economic growth. Although it stimulated the economic growth in the US in the short term, eventually it caused the collapse of economic stability globally.

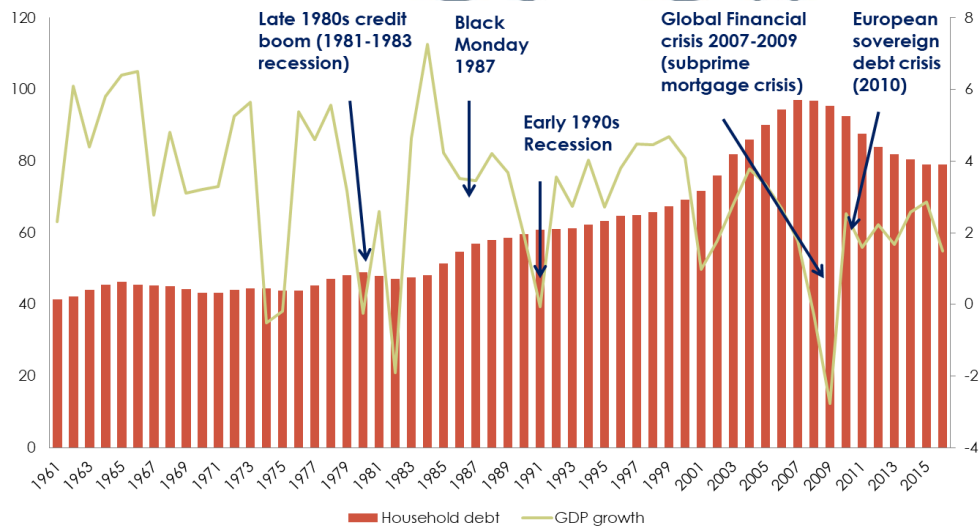


**Figure 1.1:** World output 1980–2019

The crisis started in the 1980s with the US experiencing economic recession following the significant income reduction of the bottom 90 per cent of households. The US federal government had suggested a macroeconomic policy that would encourage more household borrowings to be offered to overcome the repercussion of aggregate demand reduction. Then, the bubble.com recession in early 2000 caused more American households to struggle with credit. Hence, the Federal Reserve decided to maintain low interest rates, while under qualified borrowers were provided access to subprime mortgages credit. Consequently, house prices started escalating and the approved loans were sold as investments or known as mortgage-backed securities investments. Later, the Federal Reserve increased the interest rate to halt the heat after being warned that the trend could

expose the country to economic risk. By the end of 2004, the interest rate was 2.25 per cent, and it reached 5.25 per cent by mid-2006. Eventually, the housing bubble burst that took place from 2005 to 2006 caused an income shock and economic turbulence in the US.

Figure 1.2 depicts the increasing trend in household debt in the US since mid-1980s. The fiscal policy caused household debt to rise as the US household consumption and investment witnessed significant growth. This scenario explains the rapid increase in household debt between 2001 and 2007. The US household debt increased from 61 per cent of gross domestic product (GDP) during the early 1990s recession to nearly 100 per cent of GDP in 2008. Afterwards, it began to decline starting from the Great Recession of 2007 and fell to below 80 per cent of GDP by early 2015.



Source: Statistics of total credit to household debt, the percentage of GDP in advanced countries by Bank of International Settlement 2011-2014. The GDP growth is retrieved from the World Bank.

**Figure 1.2:** US Household Debt and GDP Growth

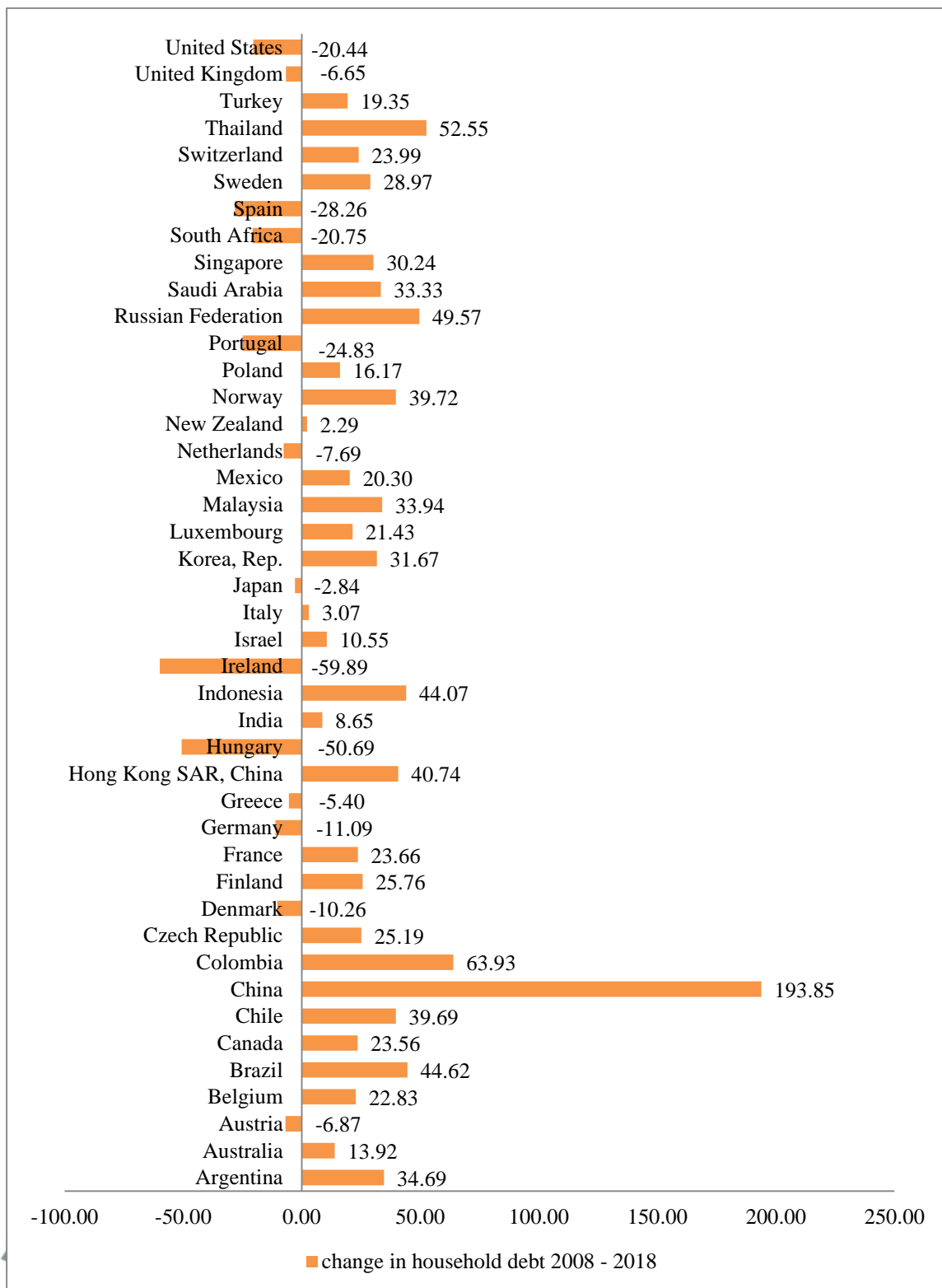
The aftermath of the crisis had a spill over effect on other countries due to the high inter-linkages among them. Alter et al. (2018) asserted that household debt caused detrimental macroeconomic effects. Household debt dampened the aggregate consumption

in many countries (see Alter et al., 2018 for a study in 80 countries; Andersen et al., 2014 for a study in Denmark; Bunn & Rostom, 2015 for a study in the UK; Dynan & Kohn, 2007; Mian et al., 2013 for a study in the US; Mian et al., 2015 for a study in 30 advanced economies; Verner & Gyongyosi, 2020 for a study in Hungary). Consequently, the instability of aggregate demand led to severe unemployment with 8.6 million people losing their jobs from 2007 to 2009 in the US (Mian & Sufi, 2014). Similarly, Donaldson et al. (2019) found that growth in household debt caused higher unemployment. Consequently, the macroeconomic turmoil caused by rapid household debt accumulation heightened the risk of economic recession, prolonged the economic slowdown, and precipitated the banking crises (Alter & Mahoney, 2020; Park et al., 2018).

In this light, strong institutions can lessen the effect of household debt on economic growth. Acemoglu et al. (2003) found that many banking crises were caused by weak political and economic institutions, leading to macroeconomic turmoil. Institutions are the settings for people to follow and respect (North, 1990). Indeed, one of the Sustainable Development Goals or SDGs (goal number 16) highlights the importance of strong institutions in strengthening legislation and promoting human rights, which may sustain economic wellbeing in the long term. In other words, if the institutions are not respected, economic development might be harmed. Accordingly, the International Monetary Funds (IMF, 2012) promotes institutional factors as an effective mechanism in reducing the problem associated with household debt. Hence, it may cause a worrying situation if policymakers are unable to take appropriate measures to establish the right institutional factors in ensuring that household debt will maintain its significant role in sustaining

economic growth. Bahadir and Valev (2020) accentuated that weak institutions lead to a stronger detrimental effect of household debt on economic stability.

Accordingly, most of the countries started to hold back the household debt accumulation due to fears of the impacts of crises. The pace of debt changes is substantial across the countries. It is noteworthy that there are big differences in the household debt-to-GDP ratio across countries between 2008 and 2018, as displayed in Figure 1.3. The statistics show that economies with greater levels of household debt before the 2008 global financial crisis started reducing their holding on household borrowings. For example, the US, UK, Denmark, Ireland, and Spain recorded very high household debt ratios beyond 80 per cent of GDP in 2007 and later deleveraged their debts following the crisis. Besides, the debt levels decreased significantly for Ireland and Hungary after the crisis to 60 per cent and 50.7 per cent of GDP, respectively. In contrast, China recorded a larger rise in household debt to about 193.9 percent of GDP during the period of 2008–2018. Some other countries that have not experienced major financial crises showed similar patterns of increasing debts levels, such as Australia, Canada, and Singapore with 13.9, 23.6, and 30.2 per cent of GDP, respectively. IMF (2017) reported that the median debt ratio in advanced countries rose from 52 per cent of GDP in 2008 to 63 per cent of GDP in 2016. Moreover, there is a similar pattern of increasing ratios in emerging economies with the median debt ratio increasing from 15 per cent of GDP in 2008 to 21 per cent of GDP in 2016.



**Figure 1.3:** Changes in Household Debt

Household debt up to a certain level can stimulate economic growth as long as the final ratio is within a threshold of 36–70 per cent of GDP (IMF, 2017). However, the ratio of household debt to GDP has been increasing gradually reaching more than 60–70 per cent of GDP in many in advanced economies. A similar trend can be seen in emerging economies with household debt reaching more than 40 per cent of GDP (see Appendix 7.1-7.2), which is a cause for concern. This tremendous progression of household debt thus triggers the question of why people tend to accumulate debt.

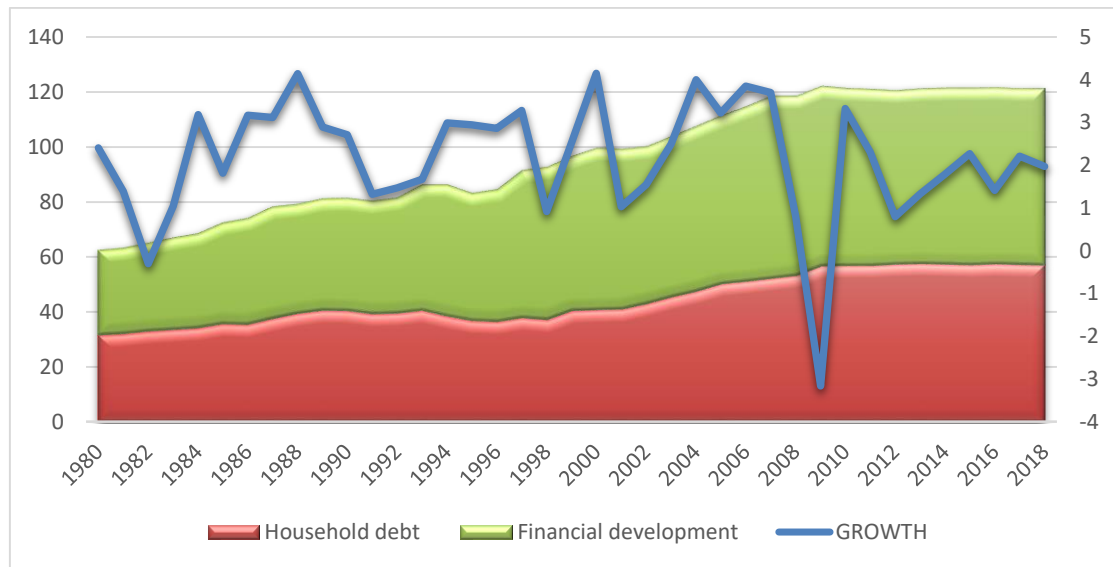
Firstly, it is important to understand the definition of household debt. Chawla and Uppal (2012) defined household debt as including housing loans and consumer loans. A housing loan, part of a mortgage debt, is a comprehensive loan for real estate and housing, whereas the latter includes “outstanding amounts on credit cards, personal and home equity of credit, secured and unsecured loans from banks and other institutions, and unpaid bills”. Mortgage debt was found to be a major contributor to the debt market in advanced economies, reaching around 70 per cent of gross household debts (Glick & Lansing, 2010).

Debt is important for some people to finance their personal constraints. According to Becker (1974), the desire to be at par with others can induce individuals to seek credit from various sources. For instance, the craving for a lucrative lifestyle and fashion leads to consumption, which demands more credit. Moreover, a person who obtains credit has the self-confidence to repay as he or she perceives of having a stable inflow of income in the future (see Friedman, 1957). According to Fisher (1933), insufficient earning to finance consumption causes households to borrow.

From the macroeconomic perspective, the determinants of household debt are based on Ando and Modigliani’s (1963) life cycle model. Macroeconomic factors including

income, demography, unemployment, inflation, consumption, and house price play crucial roles in explaining the increase in household debt (Barnes & Young, 2003; DeBelle, 2004; Masih et al., 2015; Meng et al., 2013; Meniago et al., 2013; Rashid et al., 2017; Tudela & Young, 2005).

The role of house prices as a catalyst to the rapid increase in household debt has been discussed extensively. Nevertheless, an optimistic view about the economic future coupled with rising house prices has encouraged financial institutions to provide more lending. The lax lending rules and deregulation of financial institutions also covered subprime borrowings. The rapid increase in subprime lending in the US instigated the subprime mortgage crisis in 2008. The high demand for household debt stimulated consumption while vigorous financial industry activities increased the credit supply to households. There are strong possibilities that the rapid increase in household debt was associated with vigorous financial development such as banking competition (Segev & Schaffer, 2019) and active financial deregulation, which in turn increased the credit supply (Brown et al., 2019). Figure 1.4 demonstrates a parallel trend of tremendous increases in financial development and household debt before the 2008 financial crisis for the 43 countries.



**Figure 1.4:** Financial Development, Household Debt, and Growth<sup>1</sup>

Mian and Sufi (2010) noted that the link between household debt and sub-prime mortgage was driven by the credit supply side. Petach (2020) demonstrated that the expansion of local financialisation elevates household borrowings. Sufi (2012) asked the question of whether an increase in household leverage is caused by an expansion in the supply of credit by financial institutions or due to improvements in productivity or the permanent income of borrowers. The regulator should be concerned if the high household debt accumulation was caused by the expansion of financial institutions, which typically culminates in financial crises (Aliber & Kindleberger, 2017). Demirgüç-Kunt and Detragiache (1999) analysed 53 countries between 1980 and 1995 and found that improved financial development followed by financial liberalisation increased the probability of banking crises, which led to financial crises. This scenario highlights the important role of financial development in the rapid expansion of household debt accumulation.

<sup>1</sup> Household debt refers to household debt to GDP ratio, financial development refer to financial development index and Growth refers to GDP per capita growth. The household debt, financial development and growth are average of all countries.

There is a general consensus in the literature that the household debt burst was the main reason for the 2008 global financial crisis (see Alter et al., 2018; Mian et al., 2015; Park et al., 2018). The early study of Büyükkarabacak and Valev (2010) found the possibility of household debt accelerating the banking crises. In a recent study, Alter et al. (2018) confirmed that increases in household debt heighten the probability of future banking crises. A higher growth in household debt is associated with a greater probability of banking crises, especially when debt is already high (IMF, 2017). Early warning system models (EWM) have been developed to identify economic weaknesses and vulnerabilities and ultimately anticipate whether and when individual countries may be affected by a crisis. The IMF has taken a lead in putting a significant effort into developing the EWM for crises, resulting in influential papers (see Demirguc-Kunt & Detragiache, 1998; Kaminsky & Reinhart, 1999).

## 1.2 Problem Statement

The uncontrollable household debt in the US explains for the sequential 2008 global financial crisis. The aftermath of the crisis had a spill over effect on other countries due to the high inter-linkages among them. The repercussion of household debt was dampened consumption and aggregate output and increased unemployment rates in many countries. Subsequently, the rising household debt slowed down the long-run economic growth for several years. It caused prolonged economic downturn and recovery took longer than desired. While many studies have been conducted on the macroeconomic implications<sup>2</sup> of

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<sup>2</sup> For example; consumption (Bahadir & Lastrapes, 2020; Nakajima, 2020; Yunchao et al., 2020; Bunn & Rostom, 2014; Dynan et al., 2012; Mian et al., 2013; Andersen et al., 2016), unemployment (Donaldson et al., 2019) and other macroeconomic effects (Kolios, 2020; Bricongne et al., 2019; Byrialsen & Raza, 2019;

household debt, research on its effect on economic growth is still limited. Hence, the role of household debt in the growth model should be analysed further.

The impact of effective institutions on economic growth is undeniable. Financial crises first attack the economies that are deemed to have low institutional quality. Researchers agreed that the negative effect of household debt on growth is stronger when the institutional quality is poor. Several studies have taken the task to explicate the nature of growth and household debt based on numerous theories of institutional factors. Alter et al. (2018) considered exchange rate and financial inclusion, while Lombardi et al. (2017) included creditors' legal protection. However, other overlooked factors may negatively influence the household debt-growth nexus which directly points to the credibility of institutional quality, a factor which is still lacking in empirical literature. Thus, institutional quality as an influencer in the household debt and growth relationship has received limited attention and understanding in the larger fieldwork. This scenario raises the inquiry of whether the effect of household debt is harmless given the conditional role of institutional quality.

As highlighted by IMF (2017), the increasing pace of household debt to GDP in emerging economies is parallel with the scenario in advanced economies and exceeds the recommended ratio. Despite the repercussion of household debt on economic slowdown, the pace of household debt has been increasing since the crisis albeit few countries have started to deleverage their debts. Hence, this issue raises the question of what are the underlying factors that cause debt to continue to escalate? Most of the findings from

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Alter et al., 2018; Mian et al., 2017; Zabai, 2017; Kim, 2016; Moroke, 2014; Campbell & Hercowitz, 2005; Debelle, 2004).

previous studies have shown that rising household debt, coupled with high house prices, was the main reason for the mortgage crisis in the US. Nevertheless, few studies have confirmed financial development as the catalyst for rising household debt. Does financial development play a crucial role in driving the growth of household debt?

Existing strands of literature have proven the detrimental effect of household debt on growth. Economists have long debated that susceptibilities to banking crises caused by the expansion of household credit are real threats and detrimental to economic growth, such as the one witnessed in the US during the 2008 financial turmoil. Other studies argued that the growth in household debt due to the expansion of the financial side, coupled with low institutional quality, always heightens the risk of a crisis. The main concern should be if the household debt expansion was due to financial development, which usually leads to a financial crisis. Few studies have confirmed that if the neglect of downside risks by lenders is the main driver of supply shocks, then increases in credit cause economic recession and may increase the probability of future banking crises. In view of this discussion, this study is motivated to explore this query further, that is, can household debt be a predictive variable for banking crises?

This issue demands an urgent study to recommend appropriate policies to prevent another round of recession. Thus, there is a need to examine the influence of household debt on economic growth, the determinants that trigger a surge in household debt, and the link between household debt and crises.

### 1.3 Research Questions

The discussion above leads to the following questions:

- i. How does household debt influence the economic growth?
- ii. How does institutional quality affect the relationship between household debt and economic growth?
- iii. How does financial development contribute to the tremendous increase in household debt?
- iv. How does household debt serve as an indicator of the Early Warning Signal (EWS) in predicting the probability of systemic banking crises?

### 1.4 Research Objectives

The aims of the study are constructed based on the queries, and these are:

- i. To examine the effect of household debt on economic growth. **(RO1)**
- ii. To examine the role of institutional quality in the relationship between household debt and economic growth. **(RO2)**
- iii. To investigate the influence of financial development on household debt. **(RO3)**
- iv. To examine the role of household debt as an indicator in the EWS in predicting the probability of systemic banking crises. **(RO4)**

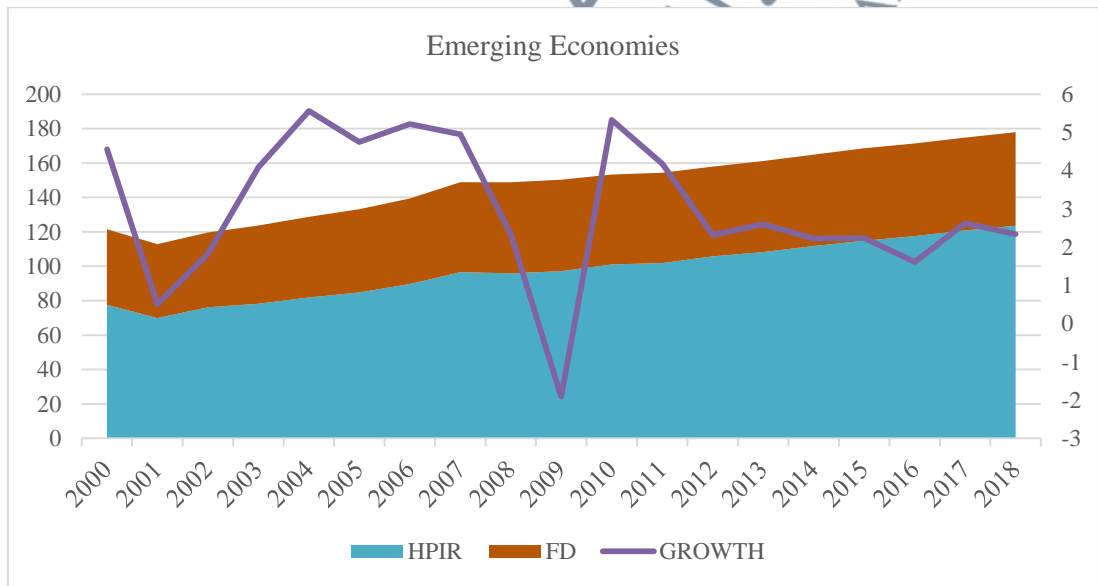
### 1.5 Motivation and Significance of the Study

Numerous studies have voiced concerns over the impact of extremely high household debt on economic growth in advanced countries, but few have looked at the emerging economies. This study is motivated to analyse the panel dataset covering both advanced and emerging economies due to several inherent similarities between both economies.

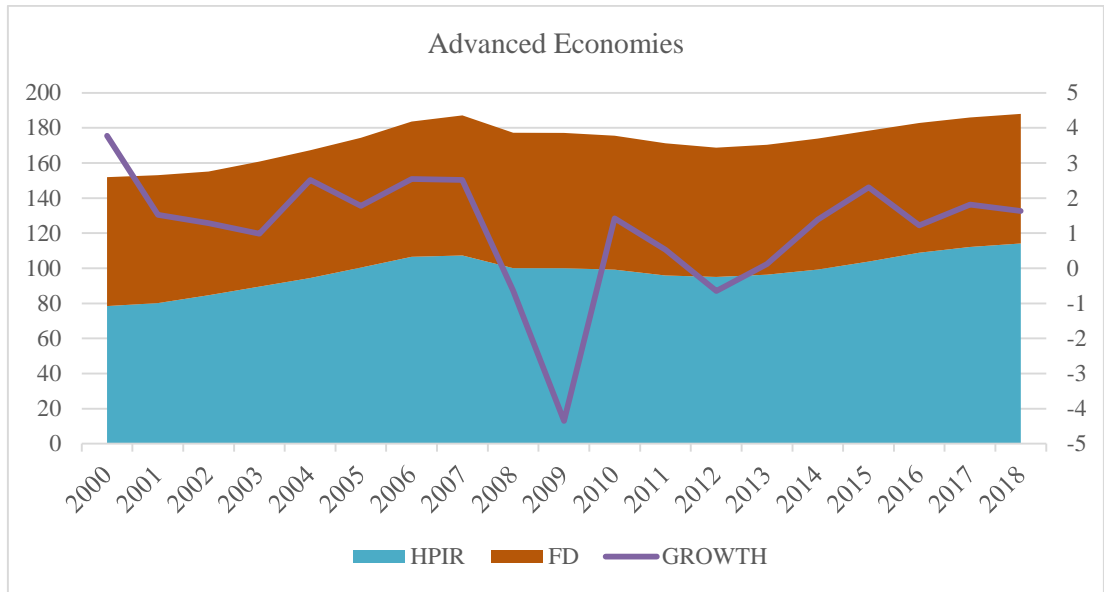
Firstly, economists have concluded that household debt is detrimental to growth once it reaches a certain level. As highlighted by Cecchetti et al. (2011), household debt contributes to positive growth but only up to a certain level. Beyond the threshold of 85% of GDP, the impact is deemed as highly ambiguous. Lombardi et al. (2017) demonstrated that household debt boosts consumption and GDP growth in the short term but has a long-run negative impact on consumption and GDP growth beyond the 60 per cent and 80 per cent household to GDP ratio, respectively. IMF (2017) stipulated that for household debt to have a favourable effect on growth, the threshold should be between 36 and 70 per cent of GDP. However, many countries are still holding their debt level at more than the recommended threshold. This alarming scenario is happening in both advanced and emerging economies. The household debts in emerging economies such as Korea, Malaysia, Thailand, Hong Kong, and Singapore are in frightening state (see Appendix 7.1-7.2). Hence, the risk stemming from elevated household debt has motivated the researcher to conduct this study.

Secondly, as highlighted by IMF (2017), the household debt to GDP ratio for advanced economies increased progressively from 35 per cent in 1980 to about 65 per cent in 2016 and slower since the global financial crisis 2008. Meanwhile for emerging economies, the ratio is still at a lower level but rising tremendously over a shorter period from 5 per cent in 1995 to about 20 per cent in 2016. Besides, the symptoms of a crisis are inherent in developing countries, such as increases in house prices at a faster pace. The rapid increases in household debt are similar in advanced and emerging economies, which explains the use of samples from both types of economies in this study.

Thirdly, there is a general consensus in the literature that the surge in household debt, coupled with inflated house prices, was the main reason for the 2008 global financial crisis (Alter & Mahoney, 2020; Koijen et al., 2009; Mian et al., 2015). Nevertheless, some studies argued that financial development had caused the rapid increase in household debt. Figures 1.5 and 1.6 show that the house price and financial development trends for both developed and emerging economies are parallel and showing an increasing pattern. Indeed, increases in household debt are associated with heightened downside risks to future GDP growth for all countries (IMF, 2017; Alter et al. 2018). Thus, this reason has motivated the researcher to investigate the factors leading to the tremendous surge in household debt.



**Figure 1.5:** Real house price index (HPIR), financial development (FD), and GDP growth (GROWTH) for emerging economies



**Figure 1.6:** Real house price index (HPIR), financial development (FD), and GDP growth (GROWTH) for advanced economies

The issue of tremendous increase in household debt is disconcerting. IMF (2017, 2019) has voiced concerns over the consequence of extremely high household debt on economic growth by reporting it in three consecutive years. Hence this study is motivated to analyse the panel dataset covering both advanced and emerging economies. Nevertheless, the author acknowledges the heterogeneous effects on both economies in terms of real income, and hence, the study has split the sample for further analysis to test for robustness.

On the other hand, the novelty of this study lies in its important contributions in several aspects, namely theoretical, empirical, methodological, and practical implications. This study contributes to theory by including the role of institutional factor in the growth model and financial development in the household debt model. Secondly, the empirical contribution is in providing evidence respected to research objectives. Further, this study contributes four specific contributions to the body of knowledge.

First, it is an extension of the existing literature that provides a better understanding of the role of institutional quality in the relationship between household debt and growth. Previous studies that focused on institutional factors included foreign exchange, financial development (Alter et al., 2018), and legal protection of creditors (Lombardi et al., 2017). Very few of studies, except for Bahadir and Valev (2017, 2020), used the institutional index developed by the International Country Risk Guide (ICRG). This institutional index has been proven to have a significant role in explaining growth (see Bahadir & Valev, 2017, 2020; Khan et al., 2019; Law et al., 2014, 2017). Moreover, IMF (2017) highlighted that in the presence of high-quality institutions, household debt appears to have a positive impact on growth, and vice versa. Hence, the authorities need to consider devising vigilant measures to address the issue of rising household debt. Regardless of the outcomes, policymakers must pay attention to the tremendous increase in household debt to prevent countries from falling into default or a situation of debt-overhang.

Secondly, this study is the first to extend beyond the extant literature in trying to investigate the effects of debt on growth in a panel data set-up that facilitates in unravelling the underlying institutional quality as an interaction term, following the studies of Bahadir and Valev (2020), Demetriades and Law (2006), Law and Habibullah (2009), and Law et al. (2017). Thus, the results of this study suggest that the relationship between household debt and growth, specifically in the investigated countries, is influenced by the conditional term of institutional quality.

Thirdly, this study contributes by examining the influence of financial development on the rising household debt in investigated countries by using the financial development index. Although several studies have provided evidence on the factors that explain the

rising household debt, only a few looked at cross-country analysis and the influence of financial institution development on household debt. Thus, there is an urgency to fill the gap by conducting this study. Specially, Sufi (2012) posited that the sharp increase in household debt, driven by the supply side, should be of concern to regulators and policymakers. Further, this study employs alternative proxies for measuring financial development, which are liquid liability and private credit.

The final empirical contribution of this study is by examining the use of household debt is the EWS model to predict the probability of systemic banking crises. Substantial research has been done to explain the causes of crises, but only a few considered household debt as a significant predictor of banking crises. Thus, the findings of this study might be useful to the authorities in developing an EWS model for crises by considering households' abilities to service their debts in the future.

Regarding the methodological contribution, this study differs from previous studies in five aspects. First, this study incorporates an interaction term in the debt-growth model to study the role of institutional quality in the relationship between household debt and economic growth in the investigated countries. Second, this study employs a bias-corrected Least Square Dummy Variable (LSDVC), which is deemed suitable for unbalanced panel dataset, particularly for small cross sections. Third, this study further analyses the regression results for robustness by employing four strategies: i) splitting the sample between advanced and emerging economies to cater to the heterogeneity of country effects, ii) using different proxies for financial development, as many studies considered liquid liability and private credit as the standard proxies for financial development, iii) removing the influential terms by employing Cooks'D method following the study by Law (2018),

iv) adding banking crisis as a dummy variable in the model to take into account the effect of a crisis, and finally, iv) using alternative estimation methods by employing Generalised Method of Moments (GMM), comprising difference-GMM and system-GMM.

Regarding the practical implications, first, the findings of this study can assist central banks and other government authorities in monitoring the size of household debt as a percentage of GDP, given the findings confirm the adverse effect of debt on growth. Secondly, the results of the study can help policymakers in devising measures that reinforce institutional quality as a conditional mechanism to enhance the role of household debt in boosting economic growth. Policymakers need to introduce measures to control and manage household debt properly by establishing efficient institutional settings. Thirdly, the findings can assist the authorities in monitoring the accessibility and size of financial institutions in order to prevent the same mistake that led to the 2008 financial crisis, given the results for the third research objective confirm that the debt-growth nexus originates from financial development. Lastly, the results for the fourth research objective can give an early warning signal to policymakers to be alert of any intolerable increase in the household debt to GDP ratio and to quickly reinforce suitable policy so that the downside risk of credit growth becomes manageable.

### **1.6 Scope of the Study**

The Bank for International Settlements (BIS) has established the finest collection of data on household debt that can provide the best form of reference. The household debt data for this study refer to credit to household ratio as a percentage of GDP were obtained from BIS, following the suggestions of previous studies (see Dembiermont et al., 2013;

Mian et al., 2017). Mian et al. (2017) asserted that the BIS credit series are drawn from individual countries' sectorial financial accounts (flow of funds) and are fairly comparable across countries. Since comparable data at the international level are available for only a few countries, obtaining a more comprehensive set of data on the household debt to GDP ratio is thus a worthy cause. Hence, the BIS database, which offers a standard calculation of credit to household debt, is preferable. Alternatively, the household debt data can be retrieved from Global Debt Database, albeit the data originate from BIS as well.

**Table 1.1:** List of countries included in the study

1	Argentina**	23	Japan*
2	Australia*	24	Korea**
3	Austria*	25	Luxembourg*
4	Belgium*	26	Malaysia**
5	Brazil**	27	Mexico**
6	Canada*	28	Netherlands*
7	Chile**	29	New Zealand*
8	China**	30	Norway*
9	Colombia**	31	Poland**
10	Czech Republic**	32	Portugal*
11	Denmark*	33	Russia**
12	Finland*	34	Saudi Arabia**
13	France*	35	Singapore**
14	Germany*	36	South Africa**
15	Greece*	37	Spain*
16	Hong Kong**	38	Sweden*
17	Hungary**	39	Switzerland*
18	India**	40	Thailand**
19	Indonesia**	41	Turkey**
20	Ireland*	42	United Kingdom*
21	Israel**	43	United States*
22	Italy*		

\* Advanced economies

\*\* Emerging economies

Source: Retrieved from Bank International Settlement (BIS)

The scope of this study for the household debt-growth nexus covered 43 countries (22 advanced and 21 emerging economies)<sup>3</sup> for the period of 1980 to 2018, as shown in Table 1.1. The study considered averaged data over non-overlapping 5-year periods, following Cecchetti et al. (2011).

### **1.7 Organisation of the Study**

This study is organised into five main chapters. Following the discussion in Chapter 1, Chapter 2 focuses on the review of theories and empirical evidence derived from previous studies, and Chapter 3 presents the framework and methods for data analysis and estimation. The findings and discussion of empirical analysis are presented in Chapter 4. Finally, Chapter 5 provides the recommendations and conclusion to the study.

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<sup>3</sup>The categorisation of advanced and emerging economies in accordance to BIS (2020, pp. viii), the groupings that the BIS uses for analytical purposes are provided depends on the composition of the aggregates of various statistics and can be found as a hierarchy in locational banking statistics, international debt securities and in total credit statistics.