Research problems in analysis of relationship between financial stability and aggregated debts

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Abstract: **The aim of this paper is to review current research problems in analysis of relationship between financial stability and aggregated debts and define research problems which are not well explored and can inspire further researches.**

First, concept of financial stability was briefly reviewed and macro prudential approach explained, as the further analysis is based on this approach. Further it was reviewed what questions are raised while analyzing each aggregated debt's impact and overall influence of all debts on financial stability. Aggregated debts are the debts of institutional sectors which are households, enterprises and government.

It was noticed that most research problems concentrate on analysis of how either household debt or public debt impacts financial stability. The influence of enterprise debt is much less researched. In particular how non-financial business sector's debt is related with financial stability of the country.

And finally, the overall impacts of all aggregated debts is the least researched, therefore there is obvious need for further research problems in this area.

Index Terms: **Financial stability, household debt, enterprise debt, public debt.**

JEL: **E50, E55.**

I. Introduction

Financial stability is a rather new academic topic in economics. Its importance significantly increased during global economic crises which began in 2008. Events of financial instability has huge negative impact on economy and social welfare. Therefore it is very important to analyze the ways how to safeguard financial stability. Historically microeconomic point of view dominated while researching financial stability, but recently scientists agree that macroeconomic approach is required. Financial system has to be analyzed as a whole, systemic risk factors has to be identified. One of the most important source of risk for financial system is debt.

The aim of this paper is to review current research problems in analysis of relationship between financial stability and aggregated debts and define research problems which are not well explored and can inspire further researches. First, it is important to briefly describe the concept of financial stability. Further, relationship between financial stability and aggregated debt will be described. And finally, research problems which are currently researched and these which need further analysis will be identified.

II. Financial stability and aggregated debts

A. Financial stability concept

Financial stability can be approached from two perspectives which are microeconomic and macroeconomic. The main differences of the approaches are stated in Table I.

TABLE I
MACRO-VERSUS MICRO PERSPECTIVE

	Macroprudential	**Microprudential**
Immediate objective	To limit instability at system level	To limit problems at institutions' level
Ultimate objective	To avoid macroeconomic costs associated with financial instability	Consumer protection (investor/deposito r)
Risk characterizati on	Endogenous (dependent on collective behavior)	Exogenous (independent from the behavior of individual agents)
Correlation and common exposures across institutions	Important	Irrelevant
Calibration of prudential filters	Targets risks at system level	Targets risks at institutions' level

Research of financial stability began from microeconomic perspective. But during last decade macroeconomic approach emerged. This approach is much less researched therefore provides more research problems which can be further analyzed.

By utilizing macroeconomic approach financial stability is analyzed from systemic perspective and on macro level. Problems in individual institutions or financial markets does not create threats for financial stability until it is not

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expected that these problems damages economy as a whole or triggers spreading of problems across whole financial system (Maliszewski, 2009). Therefore number of research problems can be raised in order find out what factors influence financial stability on macroeconomic level; how these factors should be measured and monitored; how these factors influence financial stability; and what policies should be applied in order to manage these factors and safeguard financial stability.

Some authors state that in a broad sense general purpose of macroeconomic policy is to reserve financial stability. As specific goals it is possible to underline aim to decrease systemic risks and losses causes by financial crisis (Chiriacescu, 2013). On the other hand, other group of important research problems are related to systemic risk. It is important to research how systemic risk should be measured and managed.

B. Financial stability and debt

During last two decades debts increased substantially in OECD countries (Sutherland, D. et al., 2012). Which is a warning signal as indebtedness level is a very important variable influencing financial stability. High indebtedness level increases the sensibility of financial system to economic fluctuations.

While analyzing debt dynamics and its influence to economy and financial stability debt is usually defined as three separate variables: government debt, enterprise debt and household debt. Consequently researchers raise different research problems while analyzing relationship between financial stability and each mentioned debt.

Current debt trends show that high debt periods may continue. Total economy debt was rising persistently with short falls, but debt fluctuations across institutional sectors were significant (Table II). Consistent debt decreases in household and financial sectors appears rarely and debt increase trend dominates. The fluctuations into both sides are more consistent in government and non-financial sectors, but upwards trend can be also noticed. Deleveraging episodes show that debt do not decrease to previous lows (Sutherland, D. et al., 2012).

TABLE II
DEBT CYCLE CHARACTERISTICS

	Averaging increasing	
	Length (years)	**Size (% of GDP)**
Total economy	6.9	76.8
Non-financial corporate	4.4	24.6
Financial	10.7	72.5
Government	6.0	22.9
Households	10.2	16.4
	Average reductions	
	Length (years)	**Size (% of GDP)**
Total economy	3.0	-27.8
Non-financial corporate	4.5	-17.9
Financial	3.4	-21.5
Government	5.0	-14.4
Households	3.5	-5.0
	Large reductions	
	Length (years)	**Size (% of GDP)**
Total economy	5.0	-60.1
Non-financial corporate	6.6	-42.1
Financial	5.6	-55.3
Government	8.3	-34.9
Households	6.3	-10.7

Note: data from OECD national accounts. Non-consolidated debt, sample between 1950 (or earliest available year) and 2010. The debt cycles are in relation to GDP with the dating determined by business cycle dating approach, with the peak being followed by at least two years of a declining debt-to-GDP ratio. Large reductions show the average of the largest 25% of debt level reductions.

C. Financial stability and household debt

Household debt was increasing rapidly before the rise of year 2008 global crisis. Liberalization of financial markets and financial innovations stimulated investments. Credits became available for individuals with low income and it became easier to borrow for the first home (Girouard et al., 2006). Number of authors raised questions on how increased indebtedness of individuals influence financial stability.

Kask (2003) analyzed increase of household debt in Estonia by raising the following questions. Is rising debt burden of households in Estonia is exceptional phenomenon while considering international environment? What risks are created to overall financial stability by increased indebtedness of households?

Beer and Scurz (2007) raise similar questions while analyzing Austrian case. They try to find out whether household debt in an important issue for central banks, what are the sociodemographic characteristics of indented individuals in Austria and risks household debt creates to financial stability?

Debelle (2004) analyzes how household borrowing influences financial stability and macroeconomic situation of the country. It is important to understand whether household debt is sustainable? How increasing indebtedness is related to sensitivity of individuals to interest rate changes? How household debt correlate with consumption and how changes of debt and consumption impacts macro economy?

Number of researchers analyze how household sector's financial fragility should be measured in order understand its impact on unexpected fluctuations of financial stability. Gadanecz and Jayaram (2009) suggest the following indicators, net assets (assets minus liabilities) and net disposable income (earnings minus consumption minus debt service and principal payments).

Many other researches deal with similar research problems as mentioned above just they concentrate on other chosen countries (Davies, 2009; Santoso and Sukada, 2009; Endut and Hua, 2009).

D. Financial stability and enterprise debt

Relationship between financial stability and enterprise debt is substantially less researched topic comparing to household case described in the section before. Therefore it was noticed that research problems which inspire analysis of enterprise debt influence on financial stability are not well researched and need further consideration.

Some authors are building frameworks for assessing financial stability and their frameworks include variable reflecting enterprise debt (Adrian et al., 2014). For analysis enterprise debt is divided into debt of nonfinancial businesses and financial institutions. It is important to find out how enterprise debt should be measured and what variable most suitably picture it?

Other researches analyze whether increase of private sector debt (enterprise debt and household debt summed up) can indicate increase of systemic risks (Borio, Drehmann, Tsatsaronis, 2011; Borio, Furfine, Lowe, 2001; Borio, White, 2003).

How performance of enterprises effect balance sheets of financial institutions is other research problem. How increased indebtedness of businesses influence credit availability and overall financial stability of banking sector (Bernanke and Gertler, 1989; Gertler and Kiyotaki, 2012).

It was difficult to find research problems where authors solely concentrate on relationship between financial stability and enterprise debt. Usually that kind of research problems were considered while analyzing other broader topics.

Also it is important to note that while analyzing debts of institutional sectors enterprise debt is usually divided into two subsectors which are financial institutions and non-financial institutions. Therefore research problems may differ depending on whether financial institutions which are important part of financial system are analyzed or it is concentrated on non-financial businesses which influence financial system pretty different.

E. Financial stability and government debt

The relationship between financial stability and government debt is researched in the similar level as in household debt case mentioned above and much more compared to enterprise debt case.

A few authors concentrate on public debt management. They analyze how public debt should be managed in that way that it does not become source of threats to financial stability. Also researches tries to define public debt management policies which contribute to safeguarding financial stability (IMF and the World Bank, 2003; Hoogduin et al, 2010).

It is also analyzed how public debt management, fiscal policy and monetary policy are related while pursuing financial stability (Togo, 2007; Dodge, 2010). Research problems concerning spill-overs between different policies are raised (Figure 1).

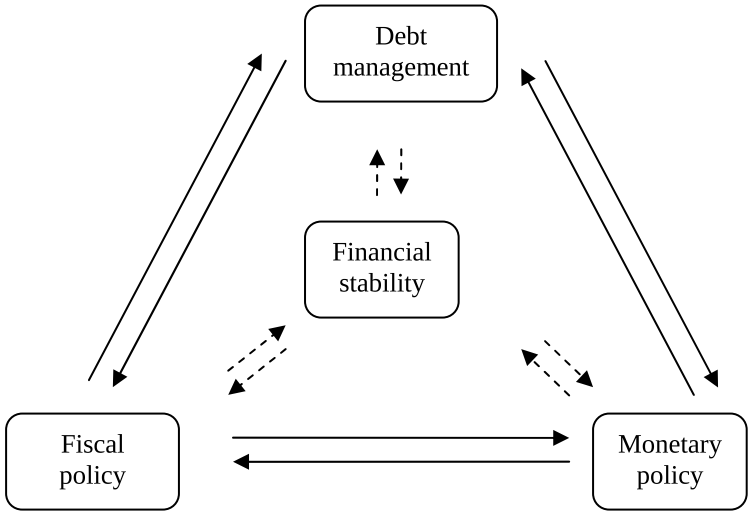

Fig. 1. Linkages between public debt management and the macroeconomic framework

Number of authors analyze last European sovereign debt crisis (Lane, 2012; Ardagna and Caselli, 2012). Different research problems are raised aiming to understand reason of European sovereign debt crisis, its progress and prevention. This crisis is the latest and still in progress example of how government debt problems leads into financial instability. Moreover the problems in one country contaminates financial systems of other countries, consequently financial stability of all region suffers. Therefore research problems analyzing spill-over effect are raised. It important to find out how financial problems in one country transfers into others and affect whole region.

Similar analysis are conducted in other regions, where similar research problems are considered. Capraro and Perrotini (2012) analyze foreign debt crisis of Latin America in the 1980s and suggest the model for prevention of similar financial instability examples. Mendoza (2009) raises questions about relationship between financial stability and public debt in emerging market economies. The author maps policy related instruments that can contribute to dealing with public debt related problems.

F. Overall impacts of all aggregated debts on financial stability

The least number of research problems are analyzed while considering overall impact of all aggregated debts (household, enterprise and public debts) to financial stability.

Some authors argue that it is more important to concentrate on private debt (households and enterprises) comparing to public debt while searching for policies towards financial stability (Schularick and Taylor, 2012). Before the last year 2008 financial crisis economists concentrated on government debt indicators, but as history showed it was a mistake. For example, in 2007 Spain’s and Ireland’s public debt did not exceed 40% of GDP, both countries met Maastricht criteria, public budgets were well balanced. But in two years their financial system collapsed. Government debt indicators did not predict any financial problems, but on the other hand financial situation of private sector could indicate upcoming financial turmoil.

In the beginning of the last global financial crisis some authors analyzed relationship between increase of private borrowing and banking crisis (Schularick and Taylor, 2012), others research relationship between fiscal policy and financial crisis (Almunia et al. 2010). But there were little attention towards analysis of joint public and private debt impact on financial stability (Jorda` et al. 2013; Schularik, 2014). This finding shows the need for research problems in that area, where complex approach is employed.

Schularik (2014) analyzed relationship between financial stability and public and private debts in developed economies during last 140 years (1870-2010). This research allows to compare effects of public and private debts on financial stability, also the joint influence may be noticed. Such research provides full picture of country’s sectors indebtedness levels relationship with financials stability and helps to notice problematic issues.

Summarizing, there are two research trends. One group of researches concentrate on private debt and the other analyze the impact of public debt. Therefore there is lack of research problems which help to find the complex effect of all aggregated debts on financial stability.

Main reason of concentration on one type of aggregated debt may be that in different countries financial instability events were triggered by particular aggregated debt. But as it was noticed each type of aggregated debt is interconnected just one’s impact to financial stability is much stronger. In order to create sufficient model for safeguarding financial stability all aggregated debts (household, enterprise and public) should be included, because each of these debts may cause financial distress in the country or complex effect may occur. In other words, all aggregated debts should be monitored as it is hard to tell which sector’s over-indebtedness may cause financial instability or overall excessive debt of the economy will cause problems for financial system.

III. Conclusion

Most research problems are raised while analyzing how financial stability is influenced by household debt or public debt. Much less researched is the impact of enterprise debt of financial stability. In particular how non-financial business sector’s debt is related with financial stability of the country. Authors concentrate more on debt of financial institutions as they are part of financial system, but problems in non-financial enterprises may also create systemic risks to financial stability.

Finally, the least researched topic is the relationship between financial stability and all aggregated debts together. There is lack of composite approach towards aggregated debts and further research problems should be considered in this area.

As it was noticed there is not enough to concentrate on one aggregate debt, as problems on other sectors may be overlooked. Also there may occur a complex effect of all aggregated debts on financial stability. As all institutional sectors are closely interconnected and debt problems in one sector may weaken another sector’s financial situation. Therefore it is important to further consider research problems concerning overall effect of aggregated debts on financial stability.

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