THE 2008-2009 GLOBAL CRISIS: IMPACT ON BANKING AND INSURANCE

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Abstract
This paper studies the impact of the 2008-2009 global crisis on banking and insurance industry, using relevant variables obtained from the Global Financial Development Database, including bank private credit, deposit money bank assets, deposit money bank assets to deposit money bank assets and central bank assets, liquid liabilities, central bank assets, financial system deposits, life and non-life insurance premium volumes, and private credit by deposit money banks and other financial institutions. Our study does not find any significant change in any of the variables of concerned before or during the crisis periods. However, we find that the ratio of liquid liabilities in the financial system to GDP increased significantly following the crisis period. Liquid liabilities comprise cash and demand deposits, and any easily convertible (into cash) liquid assets including fixed deposits, money market accounts, foreign exchange, marketable securities and government bills.

Keywords: *economic crisis, global crisis, financial crisis, banking, insurance*

Clasificare JEL : *G01, G20, G21, G22, G23, G28*

1. Introduction and context of the study

We examine how banking and insurance sectors around the world were affected before, during, and after the 2008-2009 Global Crisis. We look at the impact of the said crisis on nine variables associated with banking and insurance namely (the ratios of) bank private credit to GDP, deposit money bank assets to GDP, deposit money bank assets to deposit money bank assets and central bank assets, liquid liabilities to GDP, central bank assets to GDP, financial system deposits to GDP, life insurance premium volume to GDP, non-life insurance premium volume to GDP, and private credit by deposit money banks and other financial institutions to GDP. We obtain our data from the World Bank's Global Financial Development Database for the periods before the crisis, during the crisis, and after the crisis.

Financial development and economic growth have been extensively studied. However, the relationship between the two is at best mixed or complicated. Prior studies have documented that economic growth leads financial system development, while others find the opposite relationship. While the relationship has been established even though the direction remains inconclusive, some other have even conclude that the relationship is even non-existent and should be ignored. Another strand of studies also focuses on the impact of financial crises on financial systems, including banking and insurance sectors. In general, these studies find that a financial crisis impacts the financial system.

In this study, in addition to assessing the impact of the 2008-2009 global crisis on the banking sector, we also include the insurance sector by examining how each of the above variables moved between 2006 – 2009. For analysis purposes, we divide the sample period into three parts, i.e. before the crisis (2006 – 2007), during the crisis (2007 – 2008), and following the crisis (2008 – 2009). We perform the tests for any difference before the crisis, during the crisis, and following the crisis using the non-parametric Mann-Whitney-Wilcoxon test.

In general, we do not find any significant increase or decrease of any of the variables of concerned before the crisis period. Similarly, we do not find any significant change in the banking and insurance metrics during the crisis. However, we find that one of the variables, i.e. the ratio of liquid liabilities in the financial system to GDP to increase significantly following the crisis period. Liquid liabilities or broad money which in general constitutes not only cash and demand deposits, but also any easily convertible (into cash) liquid assets including fixed deposits, money market accounts, foreign exchange, marketable securities and government bills went up significantly.

The rest of this paper is organized as follows. The next section reviews relevant prior literature, followed by description of data and methodology in Section 3. Empirical results are presented in Section 4, while Section 5 concludes.

2. Literature Review

Financial development and economic growth have quite a complicated relationship, with both have been shown to cause each other (bi-directional), indeterminable or even unrelated. In general, it can be argued that a well-developed financial system spurs economic activity and growth since money is efficiently circulated among profitable investments or ventures. Similar arguments can be made that as an economy grows, savings increases, and this motivates participants and authorities alike to innovate instruments as well as develop a better and more efficient financial system.

While Fry (1988), King and Levine (1993), and Pagano (1993) argue that financial development leads economic growth, others such as Ang and McKibbin (2007), and Odhiambo (2008) contend that the direction of the relationship is contrary. Further, as claimed by Demetriades and Hussein (1996), Levine (1997), and Arestis and Demetriades (1997, 1999), the direction of the relationship remains inconclusive and requires further examination. Meanwhile, others seem to go as far as stating that these two variables are unrelated altogether, e.g. Lucas (1988), Stern (1989), and Chandavarkar (1992).

Prior papers such as Hüfner (2010), Liang (2012), Maredza and Ikhide (2013), Bordo et al. (2015), Dungey and Gajurel (2015), and Lysandrou and Nesvetailova (2015) study the impact of the 2008 crisis on the banking systems in different countries. Other papers also study the impact of the Greek crisis on banking systems in several European markets including Vogjazas and Nikolaidou (2011), Nikolaidou and Vogiazas (2014), and Provopulos (2014). In several of these studies, government policies, reaction and intervention seem to play a major role in mitigating the impact of the 2008 Global crisis. For example, Hufner (2010) discusses the role of government support in the German banking system, Bordo et al. (2015) in the Canadian banking system, Maredza and Ikhide (2013) in South Africa, and also Liang (2012) in the Chinese banking system.

The impact of the crisis on the insurance industry has also been examined by Bastürk and Sayin (2009), Njegomir et al. (2010), Balucha et al. (2011), Kilic et al. (2014), Afzal et al. (2013), and Alzboon and Abu Orabi (2013). Kilic et al. (2014) and Bastürk and Sayin (2009) both find the Turkish insurance industry to be affected by the 2008 financial crisis. Kilic et al. (2014) suggest that one of the reasons for such an effect is the large presence of international-linked insurance companies in Turkey. Basturk and Sayin (2009) look at the impact of the crisis on both life and non-life insurance segments. They find that in terms of increases in premium rates, the crisis affected only the non-life insurance segment but not the life insurance segment.

In ex-Yugoslavian countries, almost similar findings have been documented by Njegomir et al. (2014), i.e. the crisis had more pronounced impact on non-life insurance premium growth in the less developed markets, but greater impact on life insurance premium growth in the more developed markets. Additionally, Alzboon and Abu Orabi (2013) find that among Jordanian insurance companies, the 2008 crisis did not seem to affect their net income, but the crisis affected the values of assets and equity.

In general, prior literature suggests that a financial crisis affects the financial systems of countries globally, including the banking and insurance sectors. Therefore, in this paper, we explore how the 2008-2009 Global crisis affects both the banking and insurance sectors worldwide before, during and following the crisis. We describe our data and methodology in the next section.

3. Data and Methodology

The data for this study is obtained from the World Bank's Global Financial Development Database. The database, updated annually, contains data for more than 100 indicators covering over 200 countries on various aspects of financial systems including banks, insurance companies, stock markets and bond markets. For the purpose of this study, we employ the data from 2001-2011, and investigate the impact of the global crisis of 2008-2009 on banking and insurance sectors. Hence, we employ the following ratios:[1]

- *Bank private credit* which refers to the financial resources provided to the private sector by domestic money banks as a share of GDP.
- *Deposit money bank assets* which refer to the total assets held by deposit money banks as a share of GDP.
- *Deposit money bank assets to the sum of deposit money bank assets and central bank assets* which refers to the total assets held by deposit money banks as a share of the sum of deposit money bank and central bank claims on domestic nonfinancial real sector.
- *Liquid liabilities* which refer to the ratio of liquid liabilities to GDP.
- *Central bank assets* which refer to the *r*atio of central bank assets to GDP.
- *Financial system deposits* which refer to the demand, time and saving deposits in deposit money banks and other financial institutions as a share of GDP.
- *Life insurance premium volume* which refers to the ratio of life insurance premium volume to GDP.
- *Non-life insurance premium volume* which refers to the ratio of non-life insurance premium volume to GDP.
- *Private credit by deposit money banks and other financial institutions* which refers to the private credit by deposit money banks and other financial institutions to GDP.

The following Table 1 and Table 2 provide the summary statistics for all the variables used in our study. While Table 1 provides the overall summary statistics for the entire 2001-2011 period, Table 2 breaks the summary statistics down to annual figures, which will allow us to see the movement of these variables over the 11-year period.

Table 1. Summary Statistics

Variable	Mean	Std	Min	Max
Bank private credit	54.54	49.32	4.41	288.11
DMBA	63.05	55.36	3.72	315.49
DMBA to DMBA & central bank	89.10	13.96	35.09	100.00
Liquid liabilities	67.37	51.25	5.37	330.60
Central bank assets	4.68	6.03	0.00	33.14
Financial system deposits	57.18	48.86	4.83	325.18
Life insurance premium volume	1.61	2.12	0.00	10.49
Non-Life ins. premium volume	1.33	0.89	0.15	5.26
Pr. credit by dep. money banks	57.41	51.81	4.52	288.11

[1] For complete descriptions, refer to https://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database.

Table 2. Banking and Insurance Variables over Time (2001 – 2011)

Year	01	02	03	04	05	06	07	08	09	10	11
Bank private credit	40	40	39	40	43	47	49	54	56	54	55
DMBA	49	50	49	49	52	55	57	62	66	62	63
DMBA to DMBA & cent bank	81	81	83	84	85	87	88	89	89	89	89
Liquid liabilities	52	53	53	53	54	56	57	59	66	67	67
Central bank assets	7	8	8	7	6	6	5	5	5	5	5
Financial system deposits	45	45	46	46	48	50	51	53	59	56	57
Life insurance prem. volume	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.4	1.5	1.5	1.6
Non-Life ins. Prem. volume	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3
Pr. Cr. by dep. money banks	43	43	43	43	46	50	52	56	59	57	57

In addition to the summary statistics, Figures 1 – 9 below illustrate the trend of each variable over the 11-year period from 2001 – 2011. In general, most of these variables show an upward trend over the 11-year period except for central bank assets (downward trend) and the two variables related to the insurance industry (up then down or vice versa). A closer look at the movement of these variables between 2006 – 2009 displays a much clearer similar trend for all of the variables.

Fig. 1. Bank Private Credit

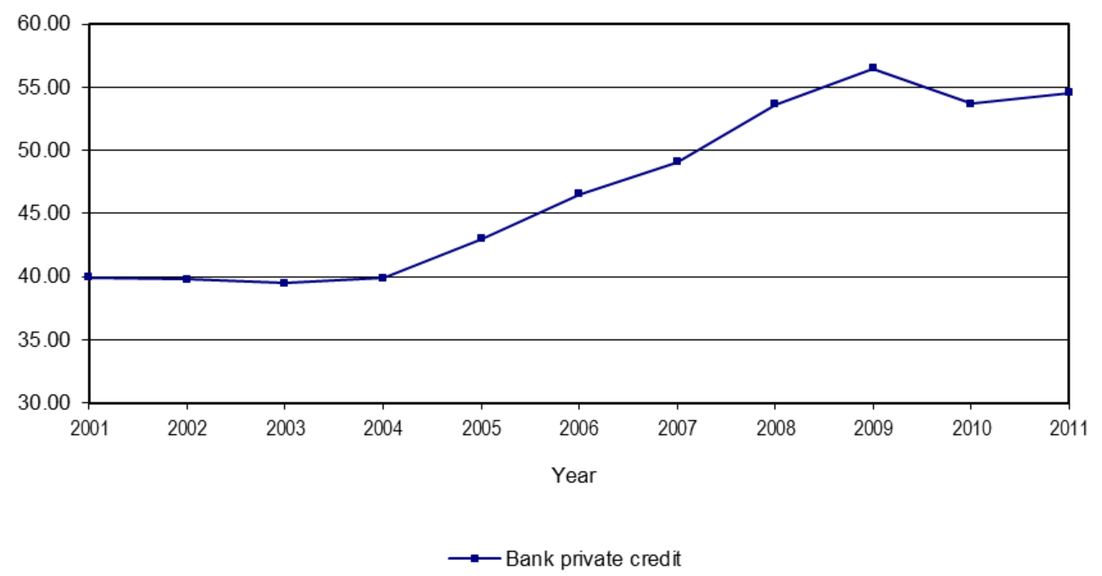


Fig. 2. DMBA

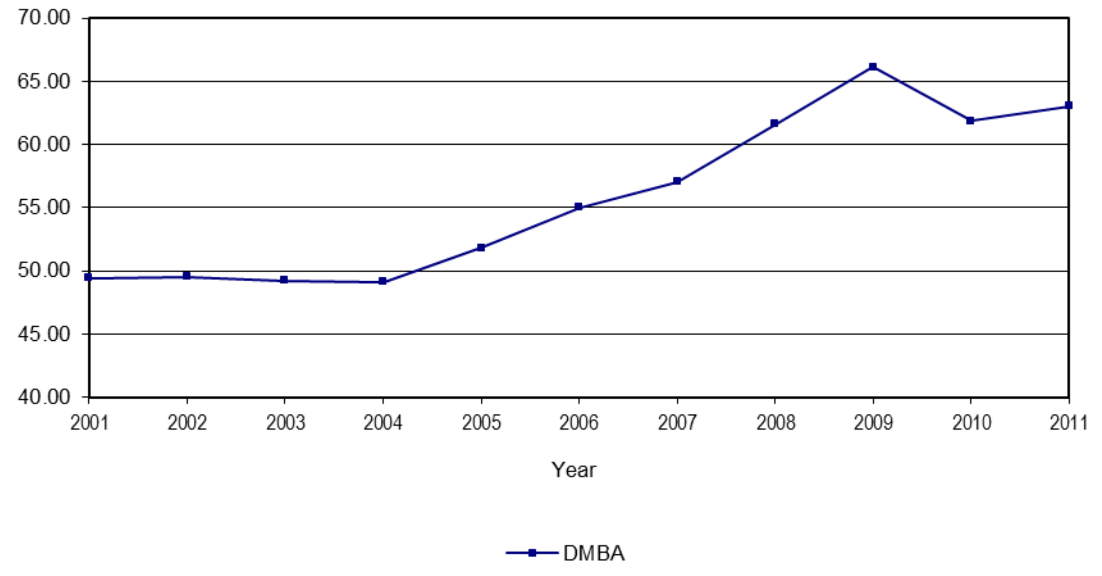


Fig. 3. DMBA to DMBA and Central Bank

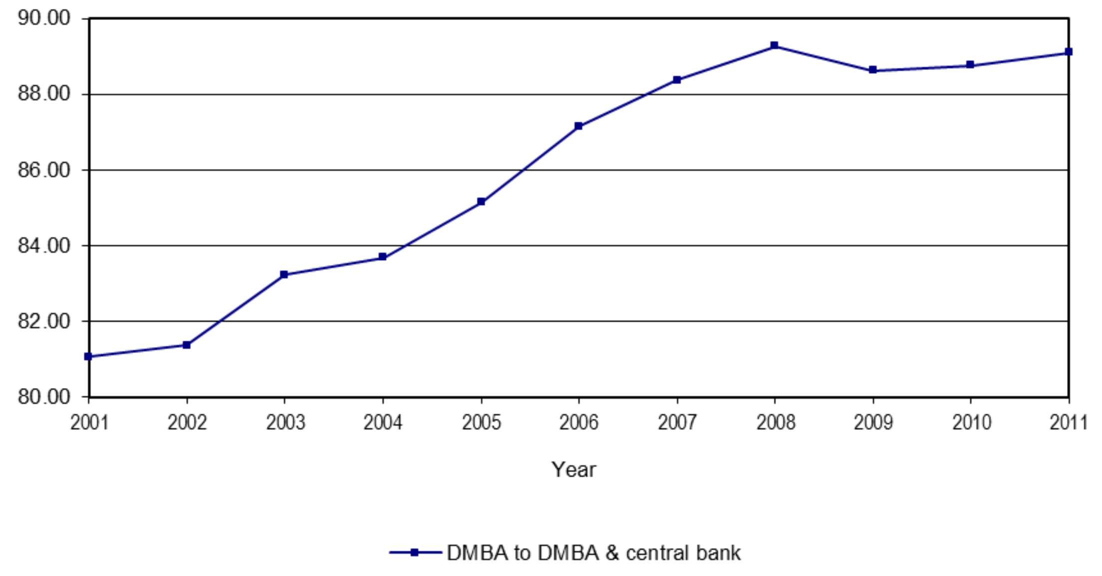


Fig. 4. Liquid Liabilities

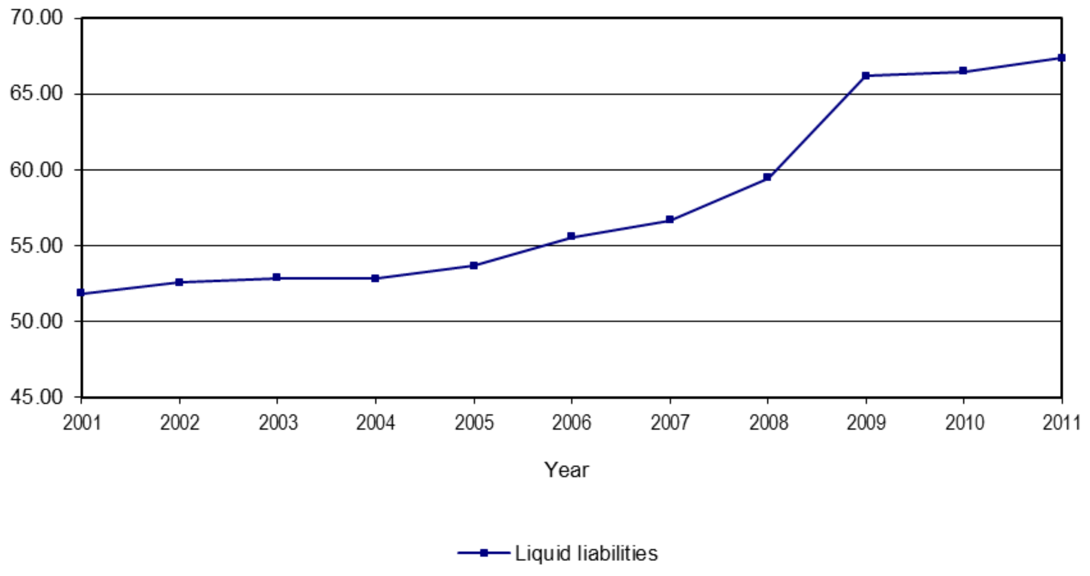


Fig. 5. Central Bank Assets

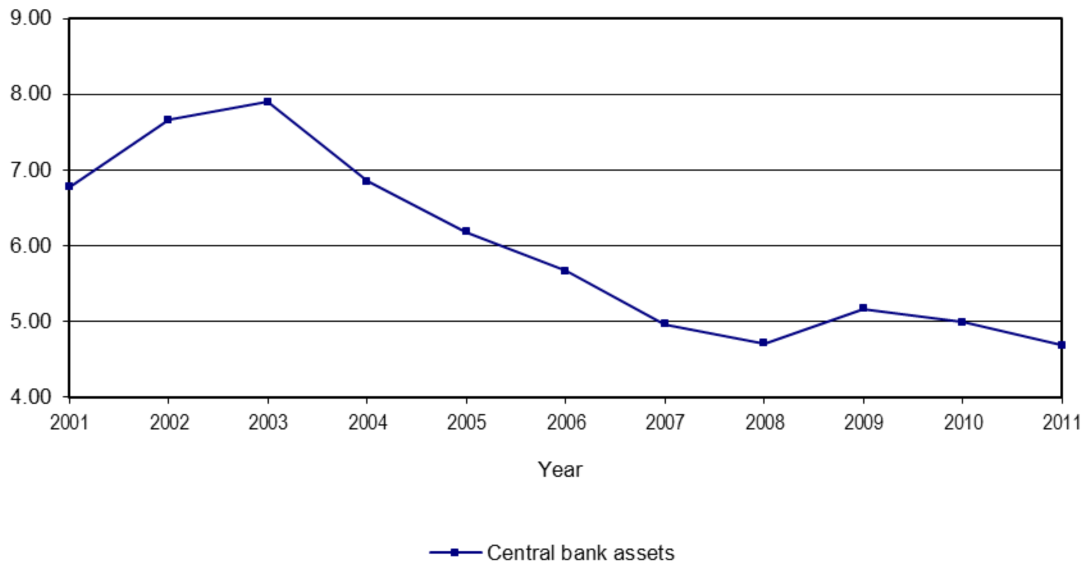


Fig. 6. Financial System Deposits

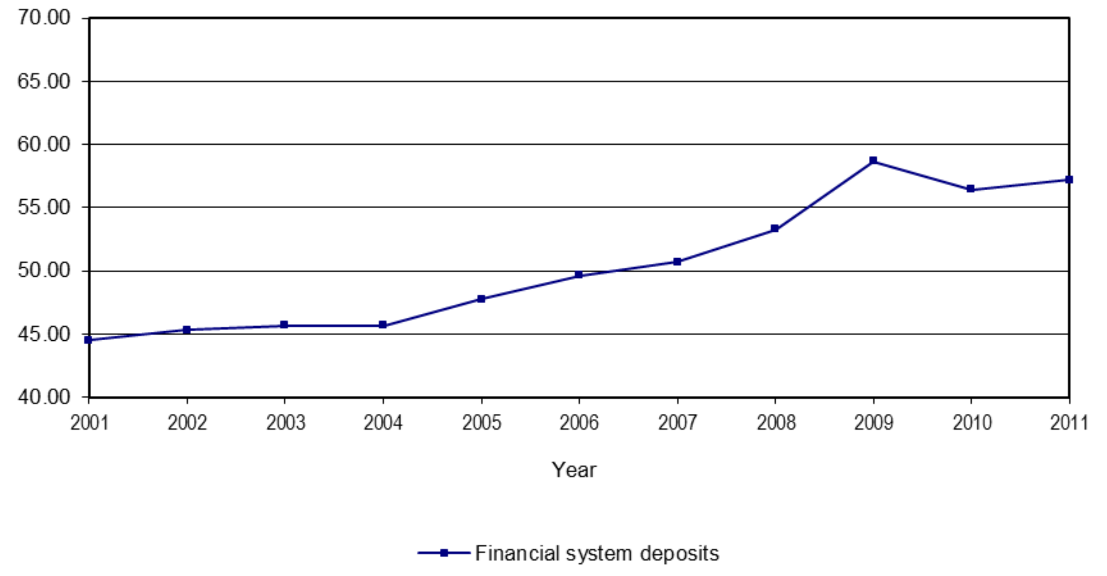


Fig. 7. Life Insurance Premium Volume

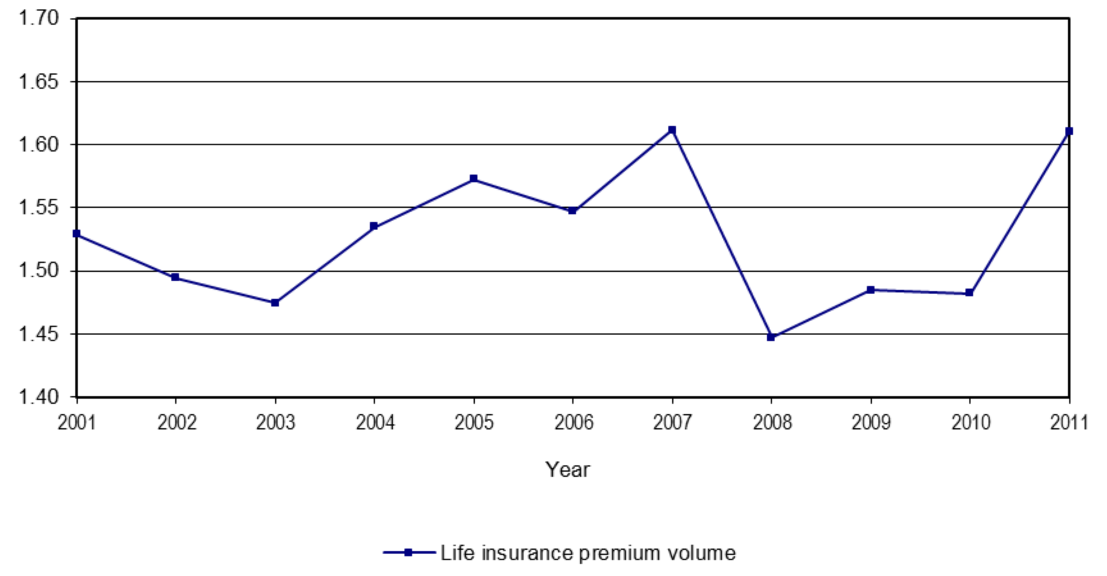


Fig. 8. Non-Life Insurance Premium Volume

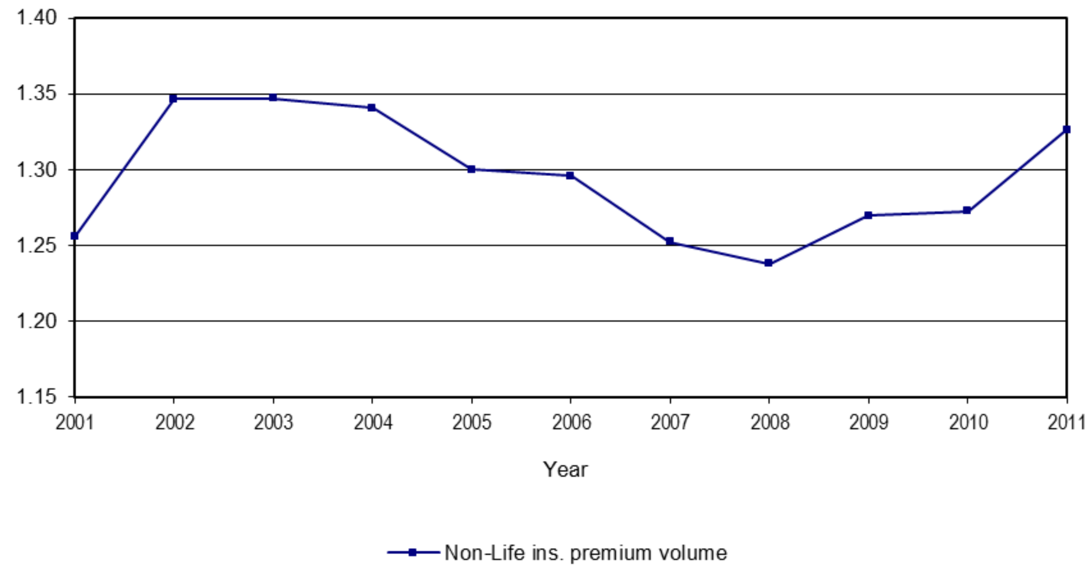
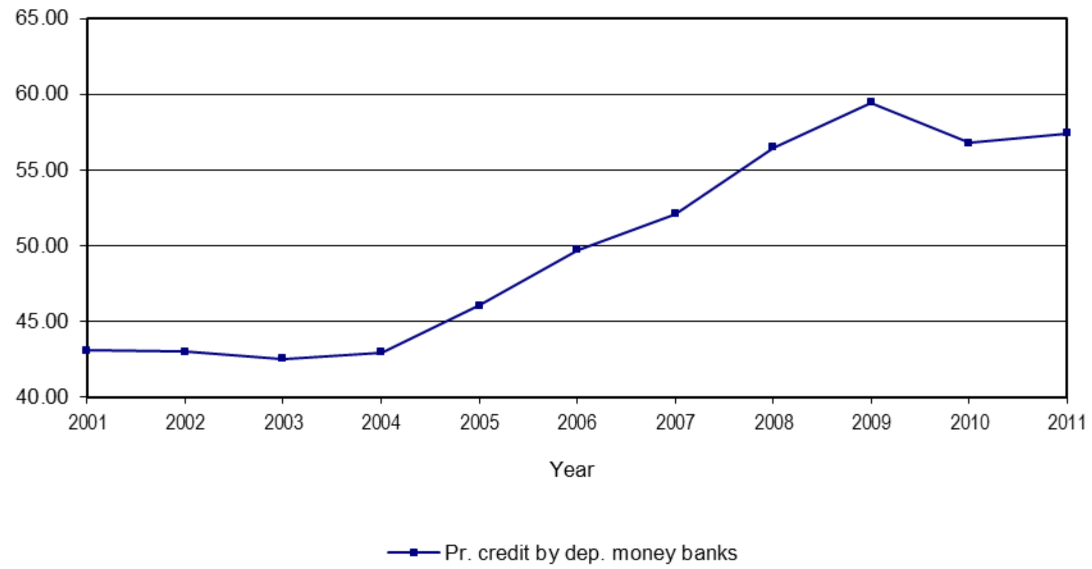


Fig. 9. Private Credit by Deposit Money Banks



In this study, we assess the impact of the 2008-2009 crisis on banking and insurance industries by examining how each of the above variables moved between 2006 – 2009. As such, we begin by examining the period between 2006 and 2007, testing for any significant change before the crisis. Next, we compare the variables between 2007 and 2008, to assess any substantial movement of these variables during the crisis period. Furthermore, to assess for any change following the crisis, we compare the variables between 2008 and 2009. We test for any difference before the crisis, during the crisis, and following the crisis using the non-parametric Mann-Whitney-Wilcoxon test, and present our findings in the following section.

4. Empirical Results

The findings of our analysis for the period before the global crisis of 2008-2009 are presented in Table 3. There was no statistically significant change in any of the variables during the period before the crisis, even though all ratios increased in 2007 from 2006, with the exception for central bank assets and non-life insurance premium volume (decreased). The central bank assets refer to claims on domestic real nonfinancial sector by the Central Bank.

Table No.3. The Change before the Global Crisis

Variable	2006 Mean	2006 Med.	2007 Mean	2007 Med.	Mann-W. p-value
Bank private credit	46.53	29.40	49.07	31.78	0.2902
DMBA	55.00	38.44	57.06	40.54	0.3475
DMBA to DMBA & central bank	87.16	94.23	88.37	95.28	0.2339
Liquid liabilities	55.56	42.24	56.66	43.35	0.3426
Central bank assets	5.66	2.54	4.96	2.13	0.1991
Financial system deposits	49.60	36.46	50.67	36.98	0.3595
Life insurance premium volume	1.55	0.58	1.61	0.57	0.3867
Non-Life ins. premium volume	1.30	1.08	1.25	1.07	0.3723
Pr. credit by dep. money banks	49.73	30.18	52.07	33.44	0.2996

Note: ** indicates statistical significance at 5%

Findings from our analysis during the crisis period are shown in Table 4. Again, there seem to be no significant impact on any of the variables between 2007 and 2008. However, note that there was an increase in the majority of the variables, except for two variables which also decreased before the crisis, i.e. central bank assets and non-life insurance premium volume, as well as this time, life-insurance premium volume. The insurance variables refer to the insurer's direct premiums earned (if Property/Casualty) or received (if Life/Health) during the previous calendar year.

Table No.4. The Impact during the Global Crisis

Variable	2007 Mean	2007 Med.	2008 Mean	2008 Med.	Mann-W. p-value
Bank private credit	49.07	31.78	53.66	35.81	0.1501
DMBA	57.06	40.54	61.64	45.45	0.1856
DMBA to DMBA & central bank	88.37	95.28	89.26	95.66	0.3395
Liquid liabilities	56.66	43.35	59.45	45.44	0.2582
Central bank assets	4.96	2.13	4.71	2.02	0.4193
Financial system deposits	50.67	36.98	53.28	39.85	0.2697
Life insurance premium volume	1.61	0.57	1.45	0.46	0.3439
Non-Life ins. premium volume	1.25	1.07	1.24	1.04	0.3587
Pr. credit by dep. money banks	52.07	33.44	56.47	36.49	0.1666

Note: ** indicates statistical significance at 5%

We also analyze the change in the variables following the crisis. As shown in Table 5, the ratio of liquid liabilities to the GDP significantly increased from over 59 percent in 2008 to about 66 percent in 2009. For other variables, despite almost all of them also increased between 2008 and 2009 (except for a decrease in DMBA to DMBA & central bank), none of the changes was statistically significant. Note that there was also an increase in the ratio of financial system deposits from 2008 to 2009 but it was only marginally significant at 10 percent. The financial system deposits refer to the sum of saving, checkable and time deposits, which is also part of the broader liquid liabilities above.

Table No.5. The Follow-up after the Global Crisis

Variable	2008 Mean	2008 Med.	2009 Mean	2009 Med.	Mann-W. p-value
Bank private credit	53.66	35.81	56.48	37.69	0.2706
DMBA	61.64	45.45	66.15	46.93	0.1673
DMBA to DMBA & central bank	89.26	95.66	88.62	95.23	0.2355
Liquid liabilities	59.45	45.44	66.19	51.64	0.0435**
Central bank assets	4.71	2.02	5.17	2.57	0.1847
Financial system deposits	53.28	39.85	58.66	44.52	0.0919
Life insurance premium volume	1.45	0.46	1.48	0.50	0.3333
Non-Life ins. premium volume	1.24	1.04	1.27	1.06	0.3276
Pr. credit by dep. money banks	56.47	36.49	59.45	41.32	0.2773

Note: ** indicates statistical significance at 5%

5. Conclusions

In this study, we examine how banking and insurance sectors around the world were affected before, during, and after the 2008-2009 Global Crisis. We look at the impact of the Global Crisis on nine variables associated with banking and insurance namely (the ratios of) bank private credit to GDP, deposit money bank assets to GDP, deposit money bank assets to deposit money bank assets and central bank assets, liquid liabilities to GDP, central bank assets to GDP, financial system deposits to GDP, life insurance premium volume to GDP, non-life insurance premium volume to GDP, and private credit by deposit money banks and other financial institutions to GDP.

We do not find any significant increase or decrease of any of the variables of concerned before the crisis period. Similarly, we do not find any significant change in the banking and insurance metrics during the crisis. However, we find that only one of the variables, i.e. the ratio of liquid liabilities in the financial system to GDP to increase significantly following the crisis period. In other words, following the crisis period, liquid liabilities or broad money which in general constitutes not only cash and demand deposits, but also any easily convertible (into cash) liquid assets including fixed deposits, money market accounts, foreign exchange, marketable securities and government bills significantly increased.

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