Interest Rates and Financial Instability

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Abstract

Several financial crises, which have occurred in different geographical areas over the past 100 years have reinforced the notion that crises and market imbalances are inherent characteristics of capitalism. By surveying the transitions of financial markets, especially during the last three decades, it has been clarified that the existence of interest rates can be considered as a fault line in the economic system and will disrupt the harmony between the real and financial sectors. Based on quarterly information in the real and financial markets of the United States during 1993-2014, and econometric analysis of Granger causality, the result of this study shows that the presence of usury and its growth in the conventional economic system will expand the debt markets, which cause the separation between nominal values in the financial markets and their intrinsic values in the real sector of the economy. With the emergence and increase of this separation, asset price bubbles are created. The greed of economic agents to take advantage of profitable opportunities, which occur due to price bubbles, increases borrowing and, therefore, expands the debt markets. Moreover, during this process, speculation activities will inflate asset prices excessively, causing more separation between the real sector and the financial sector. Consequently, the amount of monetary resources for the real sector will be decreased and, therefore, economic growth and employment will decline. Although some macro-prudential policies have been implemented to mitigate systemic risks and reduce the incidence of financial crises, they will not remedy the inherent instabilities of financial contracts. Islamic financial rules provide the economic system with mechanisms, which bring robustness and resilience to the financial system.

Keywords: Interest Rate, Borrowing, Separation, Asset Price Bubbles, Financial Crisis

1. Introduction

Capitalism has experienced various financial crises during its life span (Saiti et al., 2015). These repeated failures of the conventional economic system have made headlines, which led many scholars to conclude that financial crises are inherent to capitalism. Borodo et al. (2001) analyzed a data base spanning 120 years of financial history, and find that crisis frequency since 1973 has doubled in contrast to the Bretton Woods and classical gold standard periods. Moreover, the 2007 global financial crisis has stimulated debates about the roots and causes of this phenomenon in the conventional financial system. Mainstream thoughts on this subject focuses on systemic risk in financial markets and therefore in order to contain financial externalities, which threaten the stability of the financial sector, conventional economists have placed considerable emphasis on the implementation of macroprudential policies. While these policies do not eliminate the pro-cyclical nature of the financial sector, there is some controversial discussion about the effectiveness of macroprudential policies (Claessens, 2014). Therefore, to explain the real causes of financial crises in the capitalism and resolve them, it is necessary to investigate deeper in order to find innate problems of conventional financial system, which result in financial crises that afflict many countries all over the world.

In this paper, we present an alternative explanation for the occurrence of financial crises in capitalism. To do so, this paper proceeds as follows. Section II discusses some contemporary thoughts in the literature of financial crises. Section III presents a conceptual framework, which presents a mechanism for the occurrence of financial crisis. Section IV introduces the data and econometric methodology to assess the validity of the presented financial crisis mechanism, and also discusses the results. Section V briefly

reviews Islamic financial principles, which provides an economic system with a stable financial sector. Section VI concludes by highlighting the relevant implications for financial stability.

2. Literature Review

Conventional financial system is now plagued by persistent crises. According to Stieglitz (2003), there have been more than 100 crises over the last four decades. On the causes of financial crises, a gamut of opinions has been discussed by experts, scholars and economists. Even, in some extreme analysis, they warn about the imminent breakdown of capitalism[*]. Colander et al. (2009) state that financial crisis presents both an ethical and an intellectual challenge to economics, and an opportunity to reform its study by grounding it more solidly in reality. They argue that "*Economists not only failed to anticipate the financial crisis; they may have contributed to it - with risk and derivatives models that, through spurious precision and untested theoretical assumptions, encouraged policy makers and market participants to see more stability and risk sharing than was actually present.*". They believe that the failure to even envisage the current problems of the worldwide financial system and the inability of standard macro and finance models to provide any insight into ongoing events make a strong case for a major reorientation in these areas and a reconsideration of their basic premises.

Zaher and Hassan (2001) argue that conventional western financing lacks a corrective mechanism to stop excessive borrowing beyond individual companies' means. In good times, raising funds is easy, while in bad times the cost of raising funds is high; therefore, the risk to the financing institution has increased.

Aziz and Gintzburger (2001) believe that there are two key catalysts of the recent crisis. The first catalyst is the large injection of money from the private sector and banks into the mortgage bond market. The second catalyst is the high volume of lending practices by the mortgage brokers, banks and others that have had an impact on credit risk, especially in the loan market.

Wolf (2009) states that crises are internal mechanisms of capitalism as a system. Capitalism is prone to recurring "bubbles", created by uncontrolled speculations in real assets or financial instruments that can threaten its survival. Thus, it has evolved crises, shown by rising unemployment, bankruptcies, foreclosures, to "correct" its bubbles.

Chapra (2008) states that one of the generally recognized most important causes is excessive lending by banks. It leads to an increase in asset prices, which results in an artificial increase in consumption and speculative investment. Excessive lending becomes possible because of high leverage. The higher the leverage, the more difficult it is to unwind it, in a downturn. Unwinding gives rise to a vicious cycle of selling, that feeds on itself, which leads to a serious financial crisis.

The essence of these opinions reflects the original *General Theory* of John Maynard Keynes. In his view, the highly volatile behaviour of private investment stems from what he called "animal spirit" of agents in forming their expectations (Keynes, 2006). This inherent instability of the expectations which forms a whirlpool of speculation is the main cause of financial crisis. (ibid, pp. 80-83). Moreover, he distinguishes between the interest rate and the marginal efficiency of capital. He adds the speculative motivation for money demands and hence concludes that interest rate impose a criterion for selecting feasible project for investment, *"the actual rate of current investment will be pushed to the point where there is no longer any class of capital-asset of which the marginal efficiency exceeds the current rate of interest."* (ibid, p. 69). In other words, any project, which has a lower return than the market rate of interest, will be eliminated. Since money is demanded not only for transaction motivation, but also for speculative ones, this new demand directly affects interest rates and therefore indirectly alters investment decisions in the real sector. Thus, we can conclude that, contrary to classical paradigm, the role of money is beyond a merely means of exchange. Moreover, due to speculative demands, the dynamics of money markets is not based on the real sector. Therefore, there is an inconsistency between the circulation of money and needs of the real sector to cover its transactions. An outcome, which Keynes reprimands by stating that, *"When the capital development of a country becomes a by-product of the activities of a*

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[*] According to Rep. Paul Kanjorski, in mid-September of 2008, the U.S. came just three hours away from the collapse of the entire economy. In a span of 2 hours, $550 billion was drawn out of money market accounts in an electronic run on the banks (Marketwatch, Feb. 2009).

casino, the job is likely to be ill-done. The measure of success attained by Wall Street, regarded as an institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of laissez-faire capitalism" (*ibid*, 104). Given the pernicious influences of the interest rate, in the next section we present a conceptual framework, which explains a mechanism of financial crisis.

3. An alternative mechanism of financial crisis occurrence

This mechanism is described according to chained factors as explained below.

### 3.1 Usury and realization of money market

In the conventional financial system, monetary policymaker sets a benchmark rate for money lending, which is referred to as the interest rate, one of the main instruments to implement monetary policy in the economy. The existence of the interest rate, significantly influences the flow of fund between key markets of the economy; on occasions it withdraws money from a specific sector and transfers it to another one, and it not only shifts the destination of funds in different markets, but also it results in money hoarding. This volatility of allocated funds in different markets propagates economic instability.

Predetermined rates of return for money lending, which is *riba* and creates usurious contracts, is the reason for the realization of the money or debt market. Given the usury, in this framework, there is a price for money, which leads to the official authorization of money, like every other commodity in the economy. The prices of other commodities, however, are fluctuating daily based on demand and supply forces which have a real origination. But the price of money is derived from an agreed framework, and does not alter over the agreement period, such that borrowers have to pay the fixed rate according to the contracts. In this setting, therefore, the existence of the money market in form of a debt market is the main factor for the enormous flow of funds between markets.

In contrast to usurious contracts, equity-based contracts allocate money in the real sector of economy in the form of investment. The rate of return is a pure reflection of the movements in activities of the real sector, and therefore it is an expected rate and cannot be determined before the conclusion of the financed project or budget year. An equity-based contract shares the risks of projects between financier and entrepreneur, while a debt contract transfer the entire risks to borrower (Askari et al., 2012).

Upon setting the benchmark rate, interest rates of other money market instruments, such as treasury bills, federal agency notes, certificates of deposit, Eurodollar deposits, commercial paper, bankers' acceptances, and repurchase agreements, are determined appropriately. Although they have different maturities, they have a similar trend to the benchmark. Issuers of these instruments have to pay interests plus principal at maturity regardless of the amount of generated profit of the borrowed funds.

We may define a quantity-based index and a price-based index for usurious contracts. To show the volume of debt markets wherein money is lent and borrowed, we use the amount of total debt securities as a proxy for quantity-based index of debt market. Figure 1 demonstrates the amount of U.S total debt securities during 1983-2014, while figure 2 depicts total U.S. debt relative to U.S. GDP.
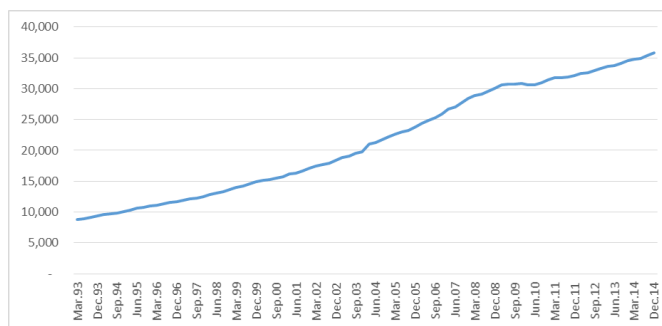
Source: BIS Quarterly Review

**Figure 1- U.S. Total Debt securities (in billions of US dollars)**
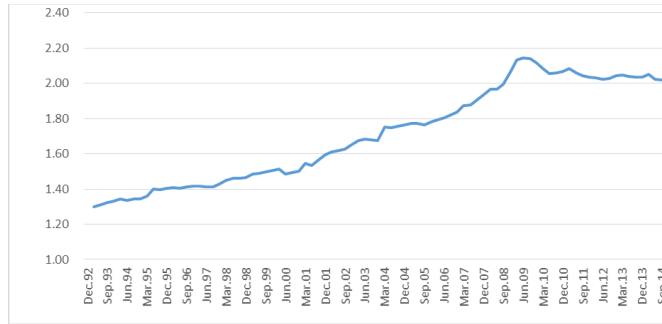
Source: BIS, BEA, and authors calculations

Figure 2- U.S Relative Size of Debt Market

Also to present a price-based index illustrating the compound value of a unit of money lent over a period, usury, we use equation (1):

$$Riba_t = Riba_{t-1} \times (1 + i_t) \qquad t = 1,2,3,\dots \tag{1}$$

At t=0, which is the base period, the usury index is normalized to 100, i.e. the principal of money which is going to be lent in the money market. Figure 3 shows Federal funds effective rate of the United States, i_t, and according to this rate, Figure 4 presents the usury index in the U.S economy during 1993-2014. In this research, we use the usury index as a proxy for the interest charges, that is *riba*, paid for the borrowed money over the period.
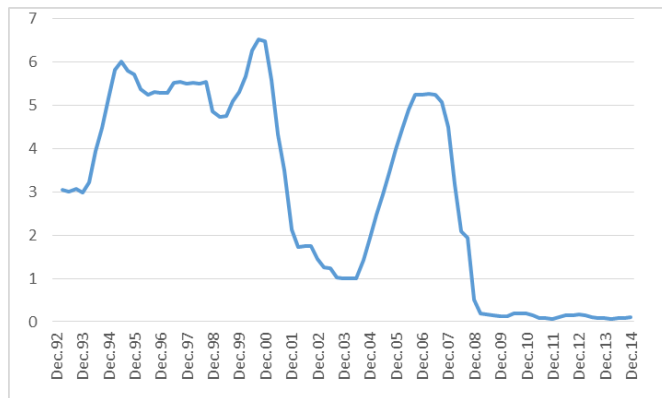
Source: Federal Reserve

Figure 4- Federal Funds Effective Rate of the United States (Percent)
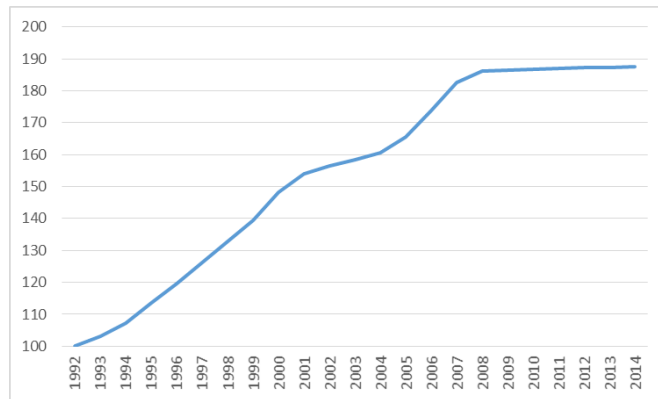
Source: Federal Reserve and authors calculations

Figure 4- Usury Index (Percent)

3.2 The role of debt market in the expansion of "separation"

In this research, we use the separation notion discussed by Davoodi and Hadian (2012) and apply their proposed index. According to them, separation happens when the nominal values of assets in the financial sector are not consistent with their intrinsic values in the real sector. In other words, the pricing of financial assets does not reflect the truth of the real sector. The proposed index to show this separation is Price-to-Earnings ratio, which is shown in equation 2:

$$PE = \frac{Price}{Earnings} \tag{2}$$

As discussed in Davoodi and Hadian (2012), this is a resulting indicator of the separation, that can be best seen in the stock markets. An increase of it implicates the expansion of the separation which eventuates in financial crisis. Short-term, profitable opportunities in an asset market increase demand for that asset and therefore, they stimulate speculative motivations of greedy agents to maximize returns. Therefore, they endeavour to borrow more from money markets. The current structure of financial markets provides financial agents with leveraged credit to buy on margin in order to multiply their expected profit. By rapid increase in asset prices, nominal values in the financial sector detach from their intrinsic values in the real sector, and create asset bubbles. As result, money flows from the real sector to the financial sector.
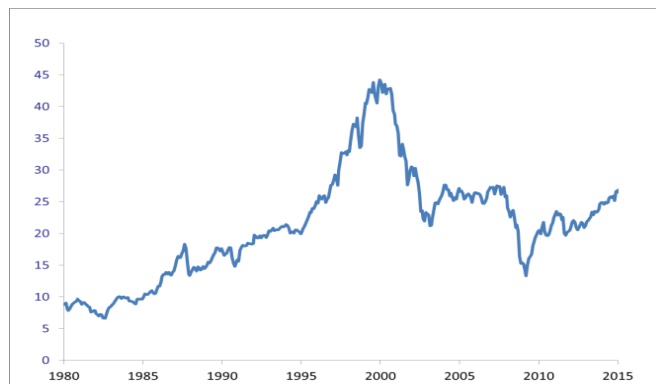
Source: Robert Shiller (2010)

Figure 5- Price to Earnings ratio of the U.S. Stock Markets

On the other hand, in debt contracts involving usury, there is legal schism between lenders and borrowers of loanable funds. Therefore, the only issue to consider for the lenders is the interest rate and they are not concern how the money is utilized. Moreover, during an up-turn in a financial cycle, creditors

adopt lax monitoring standards, which facilitate borrowing (Kindleberger, 1996; Bordo and Meissner, 2012; Gourinchas and Obstfeld, 2011). By intensifying the speculative incentives, asset bubbles inflate and the separation expands. Therefore, the existence of the money market, which is based on a usurious contract, is one of the main reasons for the expansion of the separation and occurrence of a financial crisis. Figure 5 depicts price-earning ratio, separation index, of the United State stock market.

3.3 Role of the separation in the outbreak of financial crisis

By emergence of the separation between asset returns in the financial sector and in the real sector, there is a divergence between nominal and real values, which results in asset price bubbles. Since a considerable amount of money has been allocated in the financial sector to obtain speculative profits during the consecutive process of asset price appreciation, once the bubble bursts, the balance sheets of financial intermediaries deteriorate. Moreover, the rapid fall of the asset price leads them to a liquidity shortage and credit crunch. In order to repay their debt, they may face fire sales, which results in the decline of other asset prices as well, and therefore exacerbates the situation. Also, due to inter-connectedness between financial intermediaries, the crisis spreads to other parts of the financial sector as well (De Nicoló et al., 2012; Claessens, 2014).

In addition to the problems of the financial sector, the accessibility of producing firms to funds declines. The imbalances between firms' asset and their debts, and their inabilities to repay interest of outstanding debts at maturity, can result in their liquidation. These soon can spread among different industries, and therefore eventuate in an economic crisis.

In the above mechanism, the build-up of bubbles and the outbreak of financial crises highlight the functioning properties of financial markets in preceding periods of crisis. Since the main feature of financial markets is determined on the financing arrangements, it is necessary to give attention to the concept of *riba* and usurious borrowing in evaluating its influence on financial crises.

4. Empirical Study

So far we have presented a mechanism for the occurrence of financial crisis via the role of borrowing in creating asset price bubbles, expanding the separation and subsequent occurrence of a financial crisis. Moreover, borrowing itself is materialized by the presence of debt markets wherein money can be lent or borrowed in usurious contracts. In the next section, we use econometric tests to validate our results in the U.S. economy.

4.1 Data

We try to test the stated relations between different variables and indices. Therefore, we use financial and macroeconomic data of the U.S. economy, which has experienced several financial crises, during 1993-2014. The period is sufficient to cover two recent major financial crises, i.e. the dot-com bubble in 2000 and the housing bubble in 2007. Moreover, to trace prevailing dynamic effects we have adopted quarterly frequency for the data.

4.2 Methodology

We propose to apply a well-designed econometric study based on time series methods provided by Granger causality (Granger, 1988). The causality test specifies which of the variables has an impact on the other. Since error correction models (ECM) consider the short and long-term dynamics of variables simultaneously, it supports the short and long-term causalities (Masih and Masih, 1997). So, we use ECM as per equations 3-4.

$$\Delta Y_t = \alpha + \sum_{j=1}^{m} \beta_j \, \Delta Y_{t-j} + \sum_{j=1}^{q} \gamma_j \, \Delta X_{t-j} + \lambda ECM_{t-1} + \varepsilon_t \quad (3)$$

$$ECM_{t-1} = Y_{t-1} - \hat{\theta}_0 - \hat{\theta}_1 X_{t-1} \quad (4)$$

There is causality from X toward Y if for the long-term causality $\lambda \neq 0$ and, for the short-term causality $\gamma_1 = \gamma_2 = \cdots = \gamma_m = 0$. In order to avoid spurious results, we begin by examining the stochastic nature of each variable. We use the Augmented Dickey-Fuller (ADF) test to examine the stationarity of variables. The results of this test show that all the study variables and indexes, discussed in the following, are non-stationary in level, but stationary in first difference and, consequently, they are integrated of order one (I (1)). Therefore ECM estimations are authentic and their results are interpretable. Then, for investigating co-integration between pair variables in time series models we use Johansen and Juselius (1990) techniques and, also, Pesraran et al. (2001) bound test to assure the existence of co-integrating vectors before estimating equations. They both verify the existence of co-integrating vectors between pair variables in subsequent equations. Next, we use the ECM model to determine whether there is a relation between variables, as well as the causality direction, both in the long run and short run. Also, it should be mentioned that the optimal lags of variables in ECM equations are determined by Schwartz Bayesian criterion.

4.3 Econometric Analysis

We assume there are three key markets for different types of investment:

4.3.1 Commodity Market

The money that circulates in this market is used to buy either consumption goods or investments goods. In the case of the former, it is used to fulfill households' needs, which increases their welfare. For the latter, it is used to produce final goods, which increases employment, economic growth, and also the welfare of society. Therefore, the values created in this process are genuine, since there is real benefit in terms of welfare. In other words, there is no separation in this form of investment.

4.3.2 Money Market

Those funds that enter in this market are used to gain usurious income through buying a range of interest-bearing instruments such as bonds and securities. In this situation, the presence of the interest rate can absorb money from the real sector. Since the accrued income is not necessarily related with a quid pro quo of generated added value in the real sector, the prevalence of the interest rate results in separation between the two sectors. Moreover, as the money market develops, the amount of the separation increases. In order to assess the former relation, that is the development of the debt market due to the interest rate, we can use two granger causality tests. The first, between the relative size of debt market, *BG*, and benchmark interest rate, *I*, according to (5), and the second, between the size of the debt market, *B*, and the usury index, *Riba*, according to (6).

$$\Delta BG_t = \alpha + \sum_{j=1}^{m} \beta_j \, \Delta BG_{t-j} + \sum_{j=1}^{q} \gamma_j \, \Delta I_{t-j} + \lambda ECM_{t-1} + \varepsilon_t \qquad (5)$$
$$\Delta B_t = \alpha + \sum_{j=1}^{m} \beta_j \, \Delta B_{t-j} + \sum_{j=1}^{q} \gamma_j \, \Delta Riba_{t-j} + \lambda ECM_{t-1} + \varepsilon_t \qquad (6)$$

In equations 5 and 6 we want to explore the effect of usury on the debt market. The causality test can verify if the interest rate affects debt market expansion and therefore changes the availability of funds for the real sector. Optimal lags (m, q) are (1,1) in equation 5 and (0,2) in equation 6.

Table 1 presents the result of causality tests. It indicates that there is causality form interest rate (usury) toward debt market (relative) size, both in the short run and long run. Therefore, given the ECM equations, we can say that the increase in the interest rate is the Granger causality of the expansion of debt market or usurious contracts. In other words, with a fixed amount of money in the economy, an increase in the interest rate results in the increase of financing cost of investment projects, and therefore some projects will not be feasible anymore. This leads to a decrease of investment or a decline of the real sector's portion from monetary resources, and an increase of that of the money market.

Table 1- Results of Granger Causality test

Equation:	5		6	
Causality test	Short Run	Long Run	Short Run	Long Run
Null hypothesis	$\gamma_1 = 0$	$\lambda = 0$	$\gamma_1 = \gamma_2 = 0$	$\lambda = 0$
test statistic	CHSQ(1)=23.6 P-Value=(0.00)	T=-2.06 P-Value=(0.04)	CHSQ(2)=9.84 P-Value=(0.00)	T=-5.67 P-Value=(0.00)
Test Results (Null Hypo.)	Rejected	Rejected	Rejected	Rejected
ECM	$ECM = BG - 0.13 - 0.087 \times I$		$ECM = BG - 797.6 - 10.3 \times Riba$	

Moreover, in order to assess the impacts of debt markets on the separation of the financial and the real sectors, we examine Ganger causality between the expansion of the money market and the separation index; therefore, we use BG as a proxy of debt market, and PE as the separation index, according to equation 7:

$$\Delta PE_t = \alpha + \sum_{j=1}^{m} \beta_j \Delta PE_{t-j} + \sum_{j=1}^{q} \gamma_j \Delta BG_{t-j} + \lambda ECM_{t-1} + \varepsilon_t \qquad (7)$$

Optimal lags (m, q) are (2,5) in equation 7. Results are presented in table 2 and imply the existence of short-term and long-term causality from debt market towards the separation index. Given the ECM equation, this means that an increase in the size of the debt market, involving usurious activity, will be followed by an increase in the separation between market and intrinsic values of asset prices. Since the expansion of the separation indicates asset price bubbles, the development of usurious activity increases the possibility of a financial crisis.

The overall result of statistic tests in the debt market indicates that the presence (increase) of interest rates can create (expand) the separation in the economy through the money market.

4.3.3 Equity Market

Those funds that enter the equity market are employed to purchase corporate stocks. They operate in the real sector and pay dividends to shareholders through the net profit of their operations. Hence, there is a fair price in an efficient market, based on their prospective performance. When a positive shock occurs, the price is expected to increase. In this situation, greedy agents try to multiply their gain with leverage. Therefore, speculative pressures result in rapid increases in equity prices and expansion of the separation as well. As the separation index increases, a financial crisis is likely to happen due to bubble bursting. Since the speculative demands are financed by borrowed money from the debt market, we can infer that the separation is a result of the possibility of usurious contracts, which prevail because of the interest rate. Therefore, in addition to equations 5, 6 and 7, which indirectly illustrate the impact of interest rate on the separation, we can examine this effect directly. Hence, we use the usury and separation index according to equation 8:

$$\Delta PE_t = \alpha + \sum_{j=1}^{m} \beta_j \Delta PE_{t-j} + \sum_{j=1}^{q} \gamma_j \Delta Riba_{t-j} + \lambda ECM_{t-1} + \varepsilon_t \qquad (8)$$

In equation 8 optimal lags (m, q) are (2,2). The results, presented in table 2, indicate that there is a granger causality form the usury index towards the separation index, both in the short run and long run. Given the ECM equation, it means the presence of usury and its increase causes the separation and its expansion in the economy. Since the expansion of the separation eventuates in a financial crisis, in order to lessen financial instability, it is necessary to avoid the interest rate, which is condemned under Islamic *Shari'ah* law. In the next section, we briefly review the contractual framework between financial agents in the Islamic system and discuss its implication for financial stability.

Table 2- Results of Granger Causality test

Equation:	7		8	
Causality test	Short Run	Long Run	Short Run	Long Run
Null hypothesis	$\gamma_1 = \gamma_2 = \cdots = \gamma_5 = 0$	$\lambda = 0$	$\gamma_1 = \gamma_2 = 0$	$\lambda = 0$
test statistic	CHSQ(5)=43.09 P-Value=(0.00)	T=-1.92 P-Value=(0.06)	CHSQ(2)=8.72 P-Value=(0.01)	T=-2.61 P-Value=(0.03)
Test Results (Null Hypo.)	Rejected	Rejected*	Rejected	Rejected*
ECM	$ECM = PE - 23.6 - 10.5 \times BG$		$ECM = PE - 0.19 - 0.10 \times Riba$	

*: Significant level ($\alpha = 0.075$)

5. Islamic Financial System

The central proposition of Islamic finance is the prohibition of interest rate, since it has an adverse effect on justice and humanity (Saiti et al., 2014). Therefore, every type of transaction in which a rent is collected as a percentage of an amount of principal loaned for a specific time period and shifts the entire risk of the transaction to the borrower is condemned by *Shari'ah* law (Mirakhor, 2010). There are several Islamic modes of financing, which serve as alternatives to interest based financing. Islamic doctrine considers profit and loss sharing (PLS) contracts to be the ideal mode of finance in *Shari'ah*. Being based on risk participation, they are not only *Shari'ah*-compliant, but also preferable to other types of contracts since they have a significant role in the stability of the Islamic financial system as discussed in the literature. Chishti (1985) argues that PLS financing makes payment commitments a function of cash flows and strongly discourages the financing of speculative borrowers. By using a qualitative model of two differential equations to express financing conditions and investment behaviour, he shows that PLS contracts are flexible enough to provide built-in stabilizers to the investment process. Therefore, PLS contracts eliminate excessive leverage and borrowing in any up-turn in the business cycle and absorbs the realized losses during a downturn period, they also distribute the outcome equitably between the contracting parties. In this way, they prevent a credit crunch and fire sales in Islamic finance. In other words, PLS contracts not only mitigate systemic risks in Islamic finance, but also prevent them, since they eliminate externalities, which result in a build-up of vulnerabilities in the financial sector.

Moreover, Chapra (2007) argues that the PLS system helps to ensure greater discipline by making the bankers more careful in lending and the depositors more vigilant about the health of their banks and, therefore, will further help by not allow debt to exceed the growth of the real economy. The introduction of such a discipline carries the potential of facilitating not only greater stability, but also greater efficiency and equity in the financial system. This is another advantage of PLS contracts, which resolves the externalities arising from the inter-connectedness and mis-aligned incentives of systemically important institutions regarding the prevailing belief of "too big to fail".

Given the aforementioned rationales about the necessity of macroprudential policies and the salient features of PLS contracts, we conclude that the prohibition of usury and encouragement of PLS contracts in Islamic finance eliminates the debt market and also removes the source of the separation in the economy. Moreover, the PLS framework promotes financial stability and therefore prevents financial crises.

6. Conclusion

In this paper, we have surveyed and analyzed financial crises in capitalism. The prevalent literature on this subject highlights the role of excessive borrowing and leverage in the preceding period of a crisis. On the other hand, in the conventional financial system, the presence of the interest rate materializes the debt market in which borrowing is possible. Therefore, we can infer that financial instability, which result in a crisis, stems from the interest rate. In order to verify this notion, the transmission mechanism of financial

crises has been presented, which links interest rate to financial instability. We argue that the presence of the interest rate creates a separation between the financial sector and the real sector. Moreover, speculative motivations, which are enhanced through borrowing and leverage due to debt market facilities, expand the separation. As separation expands, assets price bubble creates and increases the build-up of vulnerabilities in the financial sector.

In order to assess the validity of the discussed mechanism, first we have defined a price and quantity index for the debt market, and also a separation index has been introduced. Then, we have use quarterly data of the real and financial markets of the U.S. during 1993-2014, and econometric analysis of Granger causality between the proposed variables. The results indicate that there is causality form the interest rate (usury) towards the debt market (relative) size, and also from the debt market towards the separation index. Therefore, we conclude that the presence of usury and its growth in the conventional economic system will expand the debt markets, which cause the separation between nominal values in the financial markets and their intrinsic values in the real sector of the economy. Moreover, the results show that there is causality form the usury index towards the separation index.

Since the expansion of the separation eventuates in financial crisis, in order to lessen financial instability, it is necessary to avoid the interest rate, which is condemned under Islamic *Shari'ah* law. In other words, Islamic financial rules can provide financial systems with an alternative PLS framework, in order to promote financial stability and prevent financial crises.

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