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Schumpeter's Creative Destruction and the Credit Crunch of 2007-2008: an Islamic Banking Perspective

Section 1. Introduction

The 'credit crunch' of 2007-2008 raised questions concerning the functions of financial institutions in capitalist societies, and identified a dichotomy: to what extent should banks be permitted to innovate and to create new financial products, when the risks associated with such behaviour have the potential to destabilise the wider economy (Stulz, 2010; Stanton and Wallace, 2011)? To constrain innovation is to limit the flow of new products to markets to meet the diverse requirements of investors (Jenkinson *et al.,* 2008). Financial institutions need to constantly change to develop new profit centres and areas of specialisation but if this results in over-leveraging, and if a political decision is made that a bank is 'too big to fail', then the cost of a bailout will ultimately be borne by wider society (Boyd and Heitz, 2016). The destruction of value of assets created and traded prior to the crisis was a reaffirmation of economic principles which have played out in markets since the South Seas Bubble of 1720 and subsequent financial crashes (Allen and Gale, 2000; Garber, 1990). In the lead-up to financial crises assets become overpriced, risks are underestimated, and markets become unduly optimistic for the future. Regulators step back, not wanting to dampen activity from which ever-increasing tax revenues are generated. A market adjustment follows in which the true extent of risk manifests itself, panic sets in, and asset prices collapse (Lucarelli, 2010). In *The Theory of Economic Development* (1934) The Austrian-born economist Joseph Schumpeter developed a theory of creative destruction in which banks finance innovation which in turn generates improved productivity and prosperity. This lending behaviour is followed by a speculative bubble generated by reckless finance, and then recession. The credit crunch of 2007-2008 manifested creativity, innovation, speculative bubbles, and asset value destruction which find resonance in Schumpeter's model.

Islamic banks were not as adversely affected by the crisis as their Western secular counterparts (Farooq and Zaheer, 2015; Baber, 2018). This was for a variety of reasons, including a lack of integration of regional markets into the global capital markets in which the contagion originated. Institutional investors in Muslim countries had also eschewed investment in the complex instruments which brought about the crisis; Local markets did not offer product placement opportunities or sufficiently developed clearing systems. However, there were other impediments to the innovative practices which brought about the credit crisis, including religiosity and moral perceptions of the social responsibilities of financial institutions. In contrast, the secular model of banking behaviour is founded upon economic rationalism: focused on the pursuit of profit, management fees, and client retention, creativity which produces new financial products is permissible provided it complies with the law (Festre and Nasica, 2009). These two contrasting positions are considered in this paper. The research questions can be stated thus. First, how do the functions and objectives of banks compare in Islamic and non-Islamic secular contexts? Second, to what extent are Islamic banks susceptible to Schumpeterian forces of creative destruction? Third, how did these different perspectives affect the characteristics of products traded in both contexts prior to the credit crunch? The paper is arranged as follows. The next section compares the functions of banks from secular and Islamic perspectives, reviewing the literature. Section 3 develops the theoretical framework. Section 4 identifies the drivers of creativity and destruction which preceded the credit crunch. Section 5 considers the financial products which contributed to the crisis, and Islamic comparators. Section 6 concludes.

Section 2. Functions of banks: secular and Islamic perspectives, and literature review

In contrast to secular banking where behaviour is driven principally by the objectives of maximising returns and minimising exposure to risks, stakeholders in Islamic banks appear from the literature to be incentivised by religiosity and fulfilment of the tenets of their faith (Tripp, 2006). Farooq and Zaheer (2015), in investigating stakeholder behaviour in banks in Pakistan during the credit crunch of 2007-2008, concluded that Islamic bank branches are less prone to deposit withdrawals during

financial panics. Paradoxically, branches of banks that make both Islamic and conventional product offerings tend to attract rather than lose deposits during panics. Farooq and Zaheer proposed that on balance Islamic banks contributed to financial and economic stability by posting higher credit and asset growth rates than conventional banks. Using data of 141 countries over the period 1995-2007, Beck *et al.* (2013) concluded that during the global financial crisis, Islamic banks had a higher intermediation ratio, higher asset quality and were better capitalised. Cihak and Hesse (2010) observed that Islamic banks are financially stronger when they are small but lose their relative strength as they grow bigger in size, possibly because of deteriorating credit risk and *shariah*-compliant liquidity management. On the asset side of the balance sheet, Islamic banks are precluded from involvement in speculative activities or generating returns from the trading of money. Essentially Islamic banking is asset-based in contrast to non-Islamic banking which is debt based.

2.1 The secular banking model

The secular view of the role of financial institutions regards them as fulfilling primary and secondary functions in society. Regarding the former, banks act as conduits of capital, transferring it from those who have it to those who require it, charging a fee or interest during the intermediation process (Allen and Santomero, 2001; Watson, 1999). Banks screen potential borrowers to assess risk and ability to service debt, incorporating covenants into loan contracts governing matters such as timing of repayments, default events, and a bar on fresh debt which might rank ahead in a future insolvency (Williamson, 1986; Diamond and Dybvig, 1983). The secondary functions include measures to protect depositor wealth by initiating bankruptcy proceedings in the event of default and providing capital to enable small businesses to expand, creating employment from which taxes can be generated. For Schumpeter (1942), dynamic competition which results in new products reduces costs and increases profits. Banks compete to retain existing clients and to win new ones by lowering the cost of loans and innovating in the production of new financing techniques which better accommodate the needs, resources, and earnings profiles of borrowers and investors. Regarding the process of innovation in the commercial banking sector, Duygun *et al*. (2013) demonstrated that trademark intensity negatively affects mean cost and profit efficiency, but that there is evidence that as trademark

intensity increases, commercial banks react by improving their cost and profit efficiency. In a secular environment in which banks prioritise the maximisation of profits and shareholder returns, dynamic innovation produces competition which in turn drives down costs to the users of capital, *ceteris paribus* (Foglia *et al*., 1998; Kano et *al*., 2011). For Farooq and Zaheer (2015) maturity transformation, or the conversion of short-term liabilities into long term assets, is a core function of banks, providing the capital with which the innovation process can take place. Banks hold a mix of illiquid assets and liquid liabilities which exposes them to liquidity mismatch; Diamond and Dybvig (1983) observe that it is this mismatch which can lead to bank runs and insolvency. The interests of stakeholders are protected by the demand banks make of borrowers for collateral (Stiglitz and Weiss, 1981; Berger and Udell, 1990) or where this is not available, by either charging above-market rates or requiring preferred creditor status (Longhofer and Santos, 2000). In the Schumpeterian model this process is not associated with stasis: competition and innovation drive banks to seek out higher risk borrowers, and commensurate higher returns. In this way the cost to borrowers declines (Aghion *et al*., 2005; Berger, 2007). This behaviour drove subprime lending and the bundling together of risky cashflows which contributed to the credit crunch. Islamic banking eschews this competitive process and is considered next.

2.2 The Islamic banking model

An Islamic bank conducts its business in accordance with *Shari'ah* (Islamic law). An International Monetary Fund Report (2017) noted that Islamic banks' assets grew at double-digit rates in a decade, from about US$200 billion in 2003 to an estimated US$1.8 trillion at the end of 2013. Assets are concentrated in the Gulf Cooperation Council countries, Iran, and Malaysia, and represent less than one percent of global financial assets. During that decade, Islamic banking outperformed conventional banking, increasing its penetration rate above 15 percent in a dozen countries in the Middle East and Asia. In the context of Muslim society and the tenets of Islam, Al-Mograbi (1996) observed that Islamic banks fulfil two functions in society: religious and financial. Regarding the former, they take responsibility for complying with the basic tenets of Islam, thus setting an example for the wider community. On the

financial side, Al-Mograbi noted that, by controlling considerable flows of capital, banks are also able to fulfil a social role by giving to charity (*Zakah)*. Maali *et al.* (2006) noted that this latter social obligation is often formalised in banks' official documentation such as their articles of association. An example is provided by the Articles of Association of the Islamic Bank of Britain PLC:

'It is intended that the business affairs of the Company shall be conducted in accordance with Sharia'a. Activities of the Company will at all times be supervised by the Sharia'a supervisory committee. The Directors of the Company are obliged to ensure that the business of the Company is at all times Sharia'a compliant. From time to time, the Sharia'a advisors may be requested to approve in writing the mandates, transactions, regulations and all other appropriate matters in connection with the Company's business and to confirm that the Company's business is conducted in accordance with Sharia'a'.

Kamla *et al*. (2006, p.253) noted that to the extent that Islam comes to terms with capitalism, it places little to no emphasis on the maximisation of profit (or shareholder wealth), and specifically sees greed (*tamaa)* as a negative value to be avoided, while moderation (*iqtisad*) is seen as positive. These additional expectations derive from the religious obligation of institutions to promote social advancement, for example in the form of religious giving, but also to meet the requirements of stakeholders who are driven by religiosity rather simply receiving dividends and/or an acceptable rate of interest, which, as *riba*, is prohibited (Chong and Liu, 2009). For Janahi and Weir (2005 at p.434), strategies of profit maximisation or risk minimisation are not to be prioritised over strategies oriented to more collective objectives. Further differences between the two approaches are that in Islamic banking, security in respect of a loan cannot be demanded: loans are unsecured. Speculative activity is also prohibited (El-Gamal, 2006; Iqbal, 2007), and it is not permissible to sell something which one does not yet own. Forward rate agreements fall within this prohibition, as would options to buy something in the future at an as yet undetermined price, which would also fall within the prohibition against speculative activity. For general principles, Grais and Pellegrini (2006) summarised the position thus; 'Conducting activities in accordance with Shari'ah entails that the institution pledges: i) not to engage in interest-based transactions, ii) not to conduct pure financial transactions disconnected from real

economic activity, iii) not to participate in transactions where there is exploitation of any party, and iv) not to participate in activities regarded as harmful to society'. Money has no intrinsic value: it is the use to which it is put which gives it purpose. In this context Janahi and Weir (2005 at p. 434) observed; 'A principal understanding of Islam is that wealth is held in trust for God by human beings, so it may be understood that there are community expectations that it is wrong or misguided to undertake actions likely to lead to the loss or diminution of wealth. Also, strategies of individual profit maximisation or cost minimization are not to be paramount over strategies oriented to more collective objectives'. This section has explained how secular and Islamic banking differ in terms of behaviour which is and is not permissible. The next section develops a conceptual framework based upon Schumpeter's theory of creative destruction.

Section 3. Theoretical framework

In *The Theory of Economic Development* (1934), Schumpeter described a process of 'creative destruction' in which the financial sector functions in two distinct cyclical phases. In the primary phase, a growth spurt in the real economy occurs when banks create credit to finance entrepreneurial ventures that introduce new products or processes which increase productivity (Leathers and Raines, 2004). A secondary wave of general prosperity then follows from the entrepreneurs' investment in new ventures, carried forward by speculative spending facilitated by the spread of easy credit. When this phase of the cycle ends, a recession occurs which results in wholesale liquidations of projects which received funding during the speculative bubble and the period of reckless finance (Nicholas, 2003). The credit crunch was preceded by a period of loose finance in which risk was underestimated and the value of collateral overestimated (Murphy, 2008; Ivashina and Scharfstein, 2010). Financial institutions accumulate surplus capital and distribute it, cautiously in the first phase, then imprudently in the second. The crisis was preceded by a prolonged period of cheap money in part due to the United States Federal Reserve's decision to keep rates low in the aftermath of the terrorist attacks on the Twin Towers in 2001 (Cecchetti, 2009). During this second phase, the first casualties are those entrepreneurs who received imprudent loans and are now pushed into involuntary liquidation. The

secondary casualty is the lender when it fails to realise sufficient value from liquidations relative to the total amount still outstanding. This is the origin of bank runs and panics: financial institutions then become unable to repay amounts borrowed from other banks in the interbank market. Elements of Schumpeterian theory can be seen in the period preceding the credit crunch, and in its aftermath. Before and during the period of low interest rates, banks were unable to generate acceptable yields from government bonds, particularly gilts and Treasuries. However, they were holding large cash surpluses and needed to find new opportunities in which to invest. Initially property provided a suitable medium, but as good quality borrowers (low default risk) became satiated, banks turned to 'NINJA' borrowers (no income, no job, and no assets) where margins were still relatively high. The assumption was that, even if there were defaults in the future, the underlying security- the property- would have increased in value in the interim (Mishkin, 2011). Cashflows from these loans were repackaged and sold as mortgage backed securities, often assigned AAA by the bond ratings agencies, or alternatively issued in tranches, with lower tranches carrying a greater loss upon default and offering a higher coupon as a consequence (He *et al.,* 2011). Financial institutions became adept at transforming low quality cashflows into high rated assets, although the real risk implicit in these assets remained high from the outset. Overleveraging became prevalent; banks borrowed more, lent more, and then purchased the very assets which they had created to remove risky cashflows from their balance sheets (Wilson, 2010). At this point Schumpeter's cycle is characterised by innovation and creativity as banks find increasingly complex ways in which to transform future cashflows, particularly from property portfolios.

When the credit crunch arrived, assets previously rated AAA became toxic and illiquid. As the extent of over-leveraging became apparent, global financial institutions began to experience severe financial stress. This can be characterised as a period of destruction of value: portfolios were liquidated, insurance products such as credit default swaps became worthless, and bonds created through the bundling together of future cashflows collapsed in value as the underlying security became worthless. Elliott (1980) noted how Marx and Schumpeter focused upon capitalism's progressive and creative properties, and its innate dysfunctional qualities. Prior to the crisis, the bundling up of risky cashflows and their resale to willing investors 'freed up' originators' balance sheets, enabling them to make fresh loans to subprime

borrowers. Consequently, this group achieved access to lower cost loan capital than would otherwise have been the case if the previous cautious lending model had continued. Capitalism's dysfunctional property as identified by Schumpeter is evidenced in the mispricing of risk associated with these loans, and their submerging within a pool of higher value, lower default assets. The creative destruction associated with institutional and attitudinal change in advanced capitalism as manifested in the capital markets prior to the crisis and identified by Elliott (1980) in the works of Marx and Schumpeter is considered next.

Section 4. Drivers of creativity and destruction in financial markets

Schumpeter's model envisages a period of creativity, competition, and innovation, followed by a counterbalancing period of destruction (Kurtz, 2008; Gammon and Wigan, 2015). The period prior to the credit crunch witnessed a high degree of innovation as financial institutions endeavoured to create increasingly complex instruments with three principal objectives. First, to expand the range of investment opportunities available to investors (Wigan, 2010). For example, investors who did not want direct exposure to the property sector through mortgages made to the public could take on indirect exposure by purchasing mortgage-backed securities (MBSs). However, disintermediation techniques which led to the creation of these assets meant that investors dealt directly with the issuers and had no interaction with, or awareness of the financial circumstances of, the payers on the debt (Allen and Santomero, 1997; Downing *et al*., 2009). Thinly capitalised special purpose vehicles, usually registered offshore to avoid withholding tax, intermediated between investors and mortgagors (Buchanan, 2016). The qualities of diverse (in terms of riskiness) cashflows became opaque as investors assumed a homogeneity which did not exist: high quality mortgages had been mixed with subprime debt (Iacobucci and Winter, 2005; DeYoung *et al.,* 2008). Schumpeterian theory assumes that markets become opaque in terms of risk- who ultimately holds it, and its accurate measurement- before value can be destroyed and a new cycle of innovation commenced (Bauer, 1997; Schubert, 2013). During the credit crisis risk became under-priced and assets overvalued; herd behaviour amongst investors in exuberant markets drove prices above true worth (Aoki and Nikolov, 2015).

The second driver of financial innovation during this period was need on the part of institutions to develop mechanisms, in return for attractive fees, by which corporate clients could receive now that which they would otherwise have received over an extended period (Altunbas *et al*., 2009). Future cashflows were sold to investors in the form of collateralised debt obligations (CDOs) and other securitised products. Risks including credit default risk, market risk, and counterparty risk, could be transferred from those who held it but no longer wanted it, to investors willing to assume it in return for a coupon. From a Schumpeterian perspective, systemic risk was not reduced but instead moved within the system, obfuscated, and then magnified in terms of its destabilising capacity. Complex securities require seamless buying, selling, and clearance procedures: the Deutsche Bourse-owned post-trade service provider, Clearstream, and Belgium-based Euroclear, provided booming markets with this capacity, but the unintended consequence was that contagion and panic was more easily transmitted by virtue of these integrated global clearance systems. The paradox was that Islamic financial markets lacked comparable regional clearing mechanisms and were not integrated into the global trading architecture. Contagion originating in the United States and Western Europe was not as quickly transmissible to these regional fragmented markets as would otherwise have been the case (Khan, 2007; Longstaff, 2010; Rizvi *et al.,* 2015). The third driver of innovation was a desire on the part of financial institutions to clean up balance sheets by bundling together 'good' future cashflows with 'bad' or subprime cashflows, and transforming these into AAA-rated tradable, fungible products which could be sold to clients. This was invariably with the collusion or wilful ignorance of bond rating agencies (De Bondt, 2010). For Schumpeter (1934, 1942) this commoditisation of risk destabilises markets as a necessary precursor to crisis and destruction of value: those who mispriced it or who made the mistake in creating it in the first place (for example, in subprime lending) no longer had responsibility for overseeing it, or reducing it through renegotiation or rescheduling. A principle of Islamic finance is a prohibition of trading risk, debt, or future rights as commodities: risk and debt cannot be bundled together and resold as assets which have no relationship with the economic circumstances of the original parties to the transaction. Magnification of risk and its unimpeded circulation within and transmission across financial systems, for example commoditised in the form of bonds, is an essential precursor to Schumpeterian destruction, and is largely absent from Islamic capital markets.

This section has described Schumpeterian drivers of creativity and destruction at play prior to and in the aftermath of the credit crunch. Creativity is a characteristic of secular financial markets, producing complex assets which meet the needs of investors, and fees for arrangers of the process (Yahanpath and Joseph, 2011). Schumpeterian theory holds that creativity magnifies risk, leads to behavioural exuberance amongst market participants, and eventual collapse as market discipline is restored (Aghion *et al*., 2015). Islamic banking prohibits several of the drivers of this creative process, including payment or receipt of interest, speculative activity, and a requirement that capital should be used socially productive purposes. This contrast is evidenced in the range of financial products which contributed to the credit crunch, several of which would not have been permissible from an Islamic perspective. These products are considered next.

Section 5. The credit crunch: complex financial products as causal factors

Schumpeterian theory holds that creativity and innovation are characteristics of advanced capitalism (Schumpeter, 1934). They gather momentum in markets, whilst at the same time generating 'gales of creative destruction' by which, in due course, they become overwhelmed (Schmalensee, 2000). The analysis presumes that innovation is driven by the profit motive. Creativity is not impeded or dampened by moral or ethical considerations or norms: markets which are interconnected and seamless in terms of common regulatory criteria magnify a crisis when it arrives (Phillips and Wrase, 2006). Provided innovation takes place within the law, then it is not to be tempered by subjective values or religious principles: economic rationalism prevails. The extent to which these reduced or dampened processes of creativity and new product development which preceded the credit crisis, thereby limiting the destruction of value in the aftermath, forms the basis of discussion for the remainder of this section.

5.1 Securitisation

This practice was one of the main contributors to the credit crunch, involving the bundling together of future cashflows derived from homogenous sources such as mortgages, credit card payments, car rentals, their assignment or transfer to special

purpose vehicles, and the issuance to investors of bonds secured or collateralised by these cashflows. Securitisation of mortgages resulted in mortgage-backed securities, discussed earlier in section. These bonds could be issued in tranches bearing varying degrees of riskiness, and a concomitant difference in interest rates payable to investors. The flaws in these bonds were firstly that the underlying cashflows - the mortgage payments - were unstable, and subsequently fell into default (Caprio *et al*., 2010), and second, the collateral underpinning the issues (the properties purchased by mortgagors) had become overvalued as a consequence of an asset bubble. Financial institutions came to regard securitisation as a means of cleaning up balance sheets via the removal of illiquid assets or unstable future cashflows (in terms of default risk). Schumpeter's creative forces were manifested in several ways. First, through the removal of unpredictable future cashflows banks were able to embark on a new lending cycle, freed of the obligation to hold capital against these assets (Diamond and Rajan, 2009). As before, much of this new lending was subprime: a 'repeat offender' phenomenon. Investors also wanted exposure to what was perceived as a booming sector: the property market. The velocity of turnover of assets increased as relatively illiquid assets were transformed into securitised instruments which were highly liquid as a corollary of high ratings assigned to them by the ratings agencies. Invariably these instruments provided a floating rate of interest. Islamic finance would not have permitted this form of securitisation for several reasons. First, traditional securitisation is based on the handling of interest payments, collected by the originator from obligors (for example, mortgagors); the prohibition against *riba* extends to dealing in, receiving, or processing such payments. Second, the process represents a sale of future cashflows and risk transfer, and as such is not permitted (Acharya *et al.,* 2013). Third, payments to investors became disconnected from economic activity; investors became detached from payers such as mortgagors through the intermediation (or interposition) of a special purpose vehicle which had no purpose other than handling the pass-through of cashflows, and held no assets other than these. In Islamic finance, investors must also be exposed to risk and have some degree of ownership rights in the transaction financed. In non-Islamic securitisation investors have no recourse to the originator or obligors: the function of the special purpose vehicle is to insulate the parties through the principle of separate legal personality. This shielding is not permissible in an Islamic context: investors

must participate in the underlying economic activity, and risk exposure is the way in which this is achieved (and against which insurance is expressly forbidden).

5.2 The Islamic variation of securitisation: *sukuk*

One of the principal distinctions between securitised bond issues and *sukuk* is that whilst the former generates a rate of interest, this is not permissible in the latter, breaching the prohibition against *riba* (Chong and Liu, 2009). In *sukuk* the income generated must be related to the productivity of the assets in respect of which the certificates are issued, thereby enabling investors to share in the success or failure of the venture (Duqi and Al-Tamimi, 2019). Traditional securitised issues are collateralised by either cashflows (for example mortgage payments), or bonds which have been repackaged: *sukuk* does not permit such collateralisation and the certificates must be supported by tangible, productive underlying assets (Jobst, 2007). *Sukuk* does not permit trading in cashflows alone: there must be a relationship with the underlying asset which must be used for a genuine economic purpose (Presley and Sessions, 1994). One of the reasons why securitisation contributed to the credit crunch was the disconnect between investors and the mortgagors providing the cashflows from which the securitised bonds were serviced. Islamic financing principles require a relationship to exist between a technique and productive economic activity, and there must not be trading in cashflows alone. Schumpeterian destruction follows creativity when risk and its location within a system become opaque, later magnified by market exuberance associated with asset bubbles. Mortgage-backed securities transferred default risk from banks to investors who had no way of knowing the nature of risk implicit in securitised issues, or the quality of mortgage payments from which they were serviced.

The most common form of Islamic securitisation is *sukuk ijarah*. In this arrangement the originator establishes a special purpose vehicle (SPV) and sells assets to it which are then leased back to the originator. Lease rentals are paid periodically to the vehicle. The SPV issues *sukuk ijarah* certificates to investors representing ownership of the assets held. Proceeds are then used by the vehicle to buy the assets from the originator. Lease rentals received from the originator are paid by the SPV to investors but importantly, this is not a fixed amount (which would constitute *riba*) but instead

are proceeds generated from the productive use of those assets. Upon expiry of the lease the assets are then owned by the *sukuk* bondholders, but they are not permitted to hedge the risk of a decline in value by, for example, residual value insurance. The arrangement may also provide a put option upon expiry to investors whereby the assets can be sold back to the originator- lessee at a pre-agreed price, provided this does not include a mark-up which could amount to concealed interest. In a conventional securitisation the basis point spread on the bonds is typically reduced by means of additional collateralisation of the SPV through a partial guarantee provided by the parent or originator, or wrap-around insurance, or a transference of additional assets such as shares. These represent an attempt to shield investors from the success or failure of the venture and as such are impermissible (Archer and Karim, 2006). Schumpeterian destruction of value during the credit crunch arose from overvaluation of MBSs, an underestimation of risks, and a disconnect between the product traded and economic activity; *sukuk* appeared to avoid these weaknesses.

5.3 Repurchase agreements or 'repos'

A repurchase agreement is used by borrowers to raise short-term capital secured by the transfer of assets to a lender. However, the technique can also be used to temporarily remove assets from the borrower's balance sheet where their presence has a negative impact, for example in terms of attracting a lower credit rating due to the increased risk presented by those assets (Krishnamurthy *et al*., 2014). For accounting purposes the transaction is treated as a true sale since the seller retains no legal rights in the assets transferred, the lender taking legal title to the security, holding it pending repurchase by the borrower. In the United States the accounting rule Repo 105 was lawfully used by banks to remove illiquid bonds from their portfolios, presenting a healthier balance sheet than was the case. Norton (2010) noted that in March 2010 Anton Valukas, the examiner appointed by New York's Southern District Bankruptcy Court to investigate the collapse of Lehman Brothers, described in his report how the bank had used repos to remove risky assets from its books for between seven and ten days, artificially but lawfully enabling it to improve the health of its balance sheet. Repo 105 transactions doubled from US$ 24 billion in the fourth quarter of 2006 to US$ 49.1 billion and US$ 50.4 billion in the first quarters of 2008. However, from an Islamic banking perspective the practice would not have been undertaken for a

genuine economic purpose, and undermined transparency (by obscuring true risk) (Kamla, 2009). The practice would not have been permitted for two reasons. First, the forward agreement- the contract to buy at a future specified date- was not related to a tangible asset which could be used for a productive purpose (Sakti *et al*., 2016): it constituted 'making money from money'. Second, the practice, whilst improving the appearance of a bank and its apparent financial strength (because bad assets had been temporarily moved elsewhere), the wider community would have been adversely affected because the location of risk had been obscured (Sarkar, 2000; Karim and Archer, 2006).

A contrast to the Western 'repo': an Islamic form of sale and buy back, *bai al inah*

The principle of sale and buy back in Islamic finance is demonstrated in *bai al inah*. Under this arrangement the seller of the asset- the bank holding the security- will sell it to the buyer, another bank, on a deferred basis, buying it back later on a cash basis at a price which is lower than the original selling price. Both contracts are entered into simultaneously, and the margin difference will be the bank's profit. The delay can be reflected in a higher or lower price, depending upon which party is taking a profit. According to jurists of the Islamic Maliki and Hanbali schools of jurisprudence, this form of contract is illegal because it invariably comprises *riba*, albeit concealed in the mark-up, and is also contaminated by the motives of the parties to the contracts. In contrast, the Shafi'i school permits these contracts, provided that *riba* is absent. Subject to a formal contract being in place, the motives of the parties are irrelevant. If the transaction was based upon the spot price of the asset at the time the two contracts were entered into, then the transaction would not be regarded as *gharar*, or contaminated by uncertainty (Arbouna, 2007). However, if the buyback of the asset was to be based upon the market price prevailing at the time of the deferred transfer, then this would be *gharar* and not permitted.

5.4 Collateralised Debt Obligations

Collateralised debt obligations (CDOs) are asset-backed securities the interest payment on which is derived from a portfolio of underlying fixed income assets. The advantage of this product to the issuer is that it enables debt to be moved off-balance sheet to be pooled with comparable debt of other institutions, and then brought back in to the balance sheet in the form of synthetic CDOs. Prior to the credit crunch these instruments obscured the extent of the original risk in the issuer's balance sheet; a higher level of creditworthiness was ascribed to them by ratings agencies unable to ascertain the riskiness of the underlying security. The collapse of Bear Stearns Bank was in large part attributable to CDOs in two hedge funds with which it was closely associated and in respect of which it had given assurances to investors. The main cause of the bank's collapse was an overleveraging of its balance sheet, insufficient stress testing of underlying collateral, and an aggressive pursuit of management fees. CDOs would have contravened Islamic principles in several ways. First, they offend the prohibition against *riba*: they generate a rate of interest from the assets which have been repackaged, but those assets themselves also generate interest (Ahmad, 2000). Second, CDOs lack transparency in terms of the risk or assets being repackaged; investors lacked knowledge of the subject-matter of the transaction and as such, it was speculative (*gharar*) and would have been prohibited. Third, they represent a commoditisation of and trading in risk, and as such are impermissible.

5.5 Credit default swaps

In a credit default swap (CDS) the buyer makes payments to the seller, usually a financial institution with substantial capital reserves, in exchange for a commitment by the seller to make a payment to the buyer in the event of default on a specified bond (Longstaff *et al.,* 2005). The technique constitutes a form of insurance: the buyer is hedging the risk of a class of assets in its portfolio going into default. Risk becomes a tradable asset: the CDS exists without reference to, or exposure to the risk of, an underlying economic activity (it relates to bonds in a portfolio, rather than to the economic activity of the issuer of those bonds). In contrast, Islamic banking strives to sustain this link, an illustration being *salam*. This is a sale in which a seller enters a contractual undertaking to supply specific goods to a buyer at a future date in

exchange for an advanced price paid in the present. The price is paid in cash, with the supply of the goods subject to the contract deferred to a future date (Zaher and Hassan, 2001). Historically *salam* was intended to provide 'up front finance' for farmers who needed cashflow assistance in advance of a harvest coming to fruition. Since *riba* was not permitted, loans could not be taken out for this purpose; *salam* allowed them to sell their produce in advance, providing them with finance at a time when other sources were not available. However, the buyer also benefited since the price for the commodity sold under *salam* tended to be lower than that prevailing in the spot market at the time of the transaction. *Salam* was an exception to the *Shari'ah* prohibition on forward sales. A prerequisite to *Salam* is that payment is made in full at the time of the transaction; less than full payment would amount to a sale of debt against debt, which is expressly forbidden in *Shari'ah*. Also, the genuine purpose of the transaction was to provide funding in full to the farmer against a future harvest; payment of a lesser sum would disconnect purpose from the financing facility. *Salam* can only be effected on an 'anonymised' basis: a farmer could not sell in advance the product of a particular field or orchard since it was always possible that that specific source could be destroyed before the time for delivery, for example by flood or pestilence or drought. Such uncertainty in delivery is impermissible according to *Shari'ah*. The *salam* contract stipulates the quantity and quality of the commodity to be delivered, removing this element of uncertainty (Iqbal, 2007). Financial institutions can engage in *salam* and provide finance to suppliers of foodstuffs or agricultural produce. The profit can be the difference between the spot price at the time of the transaction, and the price paid to the producer in advance of delivery. However, the bank is obliged to actively participate in the underlying transaction: it is not allowed to provide a loan on which interest is payable by the producer. It may also enter into a collateral agreement whereby it agrees to sell the product to a third party on the same date as it is to take delivery from the primary *salam* contract, marking up the price and making a further profit on the difference (Lewis and Algaoud, 2001).

CDSs reflect product innovation by writers or sellers: a tradable asset is created in which three forms of risk are present, these being risk of original issuer default, risk of default in 'insurance' payments by the buyer of the CDS, and risk that the seller of the product will lack the capital reserves to meet its underwriting commitment should this be called upon. Innovation generates a product in which is embedded the potential

for asset value destruction should any of these risks materialise and prove unsustainable. Through risk reallocation, Schumpeterian countervailing destruction (of portfolio value) would be avoided: in the event of default on bond payments, the writers of CDSs would pay in full any outstanding interest and premiums which would have been paid up to the date of maturity (Dieckmann and Plank, 2012). As the credit crunch took hold, institutions which had sold CDSs proved unable to meet commitments: the insurance became worthless. Before the crisis, there was more money invested in CDSs in the United States than in any other investment products; the value stood at US$45 trillion, compared to $22 trillion in the stock market, $7.1 trillion in mortgages, and $4.4 trillion in US Treasuries. At this time Lehman Brothers owed $600 billion in debt, of which $400 billion was covered by CDSs. Lehman's insurers, American Insurance Group, lacked the capital to clear this debt: the Federal Reserve was compelled to bail out the provider and rescue the system from market failure. Schumpeterian 'gales of creative destruction' must move freely through financial markets to clear the ground for a new period of creativity. Caballero *et al*. (2006) observed that during the 1990s and early 2000s many large Japanese banks would have been out of business had regulators forced them to recognise all their loan losses. As a result, the banks kept many 'zombie' firms alive by rolling over loans which they knew would not be repaid. The normal competitive outcome in which the zombies would shed workers and lose market share was impeded. Insurance instruments such as CDSs have the potential to counteract Schumpeterian creative destruction: flawed investment decisions and weak portfolio and risk management do not result in value destruction or insolvency but instead survival. The failure of CDS sellers to meet their commitments can be viewed, paradoxically, as facilitating rather than impeding Schumpeter's gales. Markets became overwhelmed as the insurance intended to protect participants against a countervailing period of destruction now failed. Portfolio value was destroyed and asset holders, including Lehman Brothers and Bear Stearns Bank, were forced into insolvency. Wonglimpiyarat and Tripipatkul (2005) explained how, in a period preceding the 2007-2008 credit crunch, Schumpeter's gales led to the bankruptcy of Thai banks and financial institutions, and an ensuing process of growth through mergers and acquisitions; the same processes of destruction of value and consolidation followed in the aftermath of the credit crisis of 2007-2008.

Section 6. Conclusion

The credit crunch of 2007-2008 had different causes including reckless lending, excessive speculative activity by investors, banks and brokers, and regulatory failures (Mizen, 2008). It raised the question: to what extent should financial institutions be free to create new and increasingly complex products the risks associated with which are difficult for investors to accurately calculate. In secular markets this creative process is driven by several objectives: profit maximisation, risk transference, and renewed liquidity for formerly illiquid portfolios (Yahanpath and Joseph, 2011). In contrast, in Islamic banking the creative imperative is tempered by religious principles which prohibit these secular drivers. By virtue of not being fully integrated into the global markets in which the financial crisis originated, Islamic banks were not as adversely affected by the crisis as their secular counterparts. This paper has evaluated products and practices which contributed to the crisis, but from a Schumpeterian perspective in which bank behaviour is driven by creativity which in turn leads to periods of destruction of value: a characteristic of market-based societies founded upon economic rationalism (Aoki and Nikolov, 2015; Kotz, 2009). Islamic banking offers comparable products to investors, but religious constraints reduce the liquidity, complexity, and global marketing opportunities associated with mortgage backed securities, credit default swaps, and securitisation (Sarker, 1995). In summary, the principal benefit of Islamic banking is systemic stability and the requirement that capital is used for socially productive purposes and to facilitate economic activity: the disbenefits are diminution of investor choice, illiquid assets, thin trading markets, and reduced specialisation and global clearing processes.

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