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Introduction

Barclays PLC (Barclays) provides financial services globally. The bank offers banking solutions such as private, personal, investment, wholesale and commercial banking and other financial solutions. It serves corporates, individuals, high-net-worth clients and Small to Medium-sized Enterprises (MarketLine, 2019).

Barclays offers deposits and accounts, cards, loans etc. The bank also offers services such as foreign exchange, investment banking, transactional lending, online and mobile banking, international and premier banking (MarketLine, 2019). Barclays operates in three segments: Barclays UK, Head Office and Barclays International. The bank has its headquarters in city of London, the United Kingdom and operates in over 40 countries across different continents in, Africa, Americas Asia, Europe the Middle East (Barclays PLC, 2019). Barclay's closest competitor is HSBC. Barclay's capital adequacy and liquidity and asset quality ratios later in part A will be benchmarked against HSBC.

The first part of this report will conduct a critical review of Barclays bank's capital adequacy, the liquidity level and the quality of the asset over the past five years. The ratios will be benchmarked against the bank's closest competitor HSBC bank. The second part of the report will review the various risks faced by Barclays and how it mitigates those risks. Whereas, the third part will be a critical review of Efficient Market Hypothesis (EMH) theory and how it is relevant to the modern banking. Finally, the last part will be a discussion on the role regulators play in averting future banking financial crisis and financial system failure.

Part A – Calculation and Critical Review of the Capital adequacy, the Liquidity and Asset quality ratios of Barclays PLC for the last 5 years

Capital Adequacy and Comparison to Major Competitor

Capital is one of the most important elements that enable banks to operate affectively. Without adequate capital banks cannot survive. Therefore, to protect consumers and prevent banks falling into insolvency risk, the regulators of major industrialised countries have agreed to enforce risk-based capital ratios on banks. This agreement is known as the Basel agreement. The Economic times defines Capital Adequacy Ratio (CAR) as the ratio of capital held by the bank with reference to its current liabilities and risk weighted assets (The Economic Times, 2019).

It aims to avert commercial banks to take excess leverage and become bankrupt in the process and is decided by the regulators of the bank and the central banks (The Economic Times, 2019).

To be able to quantify the capital adequacy the newest Basel accord i.e. Basel III, states that depository institutions like banks must monitor and calculate four essential ratios of capital which are firstly the common equity Tier I (CET1) risk-based capital ratio, secondly the Tier I risk-based capital ratio, and the total risk-based capital ratio, and lastly the Tier I leverage ratio. Furthermore, to be adequately capitalised, Basel III agreement requirement states that banks must have a ratio of common equity Tier I capital to credit risk-adjusted assets of at least 4.5%, Tier I capital to credit risk-adjusted assets of 6 percent, total capital to credit risk-adjusted assets of 8 percent, and Tier I leverage ratio of 4 percent (Saunders & Cornett, 2018).

According to the Bank of England 2019, the minimum capital requirement in the UK is the same as the one set out under Basel III. However, in general countries have slightly higher capital requirement ratio than the one set out under Basel III. Therefore, as a British bank, Barclays is required to reach the required minimum amount of capital requirement of Basel III.

Tier 1 Capital

According to (Koch & Macdonald, 2015) tier 1 Capital is defines as the total common equity capital added by noncumulative preferred stock, plus minority interest in unconsolidated subsidiaries, less intangible assets like goodwill and disallowed deferred tax assets (Koch & Macdonald, 2015). For majority of banks, tier 1 capital will be equal to common stockholder's equity capital minus any net unrealised holding gains or losses on available for- sale equity securities (Koch & Macdonald, 2015).

Tier 1 capital has to be equal to no less than 4 percent of risk-weighted assets, whereas, the total capital must be equal to at least 8 percent of risk-weighted assets, and leverage capital has to be equal to no less than 3 percent of adjusted total assets (Koch & Macdonald, 2015).

According to its annual report in 2018, Barclays bank had maintained well above the required minimum 10.5% of tier 1 capital ratio by Basel III as it had a tier 1 capital ratio of 16% in the financial year of 2018.

Tier 2 Capital

(Koch & Macdonald, 2015) state that tier 2 capital is restricted to 100% of Tier 1 capital and comprises of long-term preferred stock, cumulative perpetual preferred stock and any related surplus, limited amounts of term-subordinated debt and intermediate-term preferred stock, and

a limited amount of the allowance for loan and lease losses (up to 1.25 percent of gross risk-weighted assets) (Koch & Macdonald, 2015).

Risk Weighted Assets

Banks hold various forms of assets. It normally includes cash, securities and loans made to businesses, individuals, other banks, and governments in which each type of asset has a different risk characteristics (Bank for International Settlements (BIS), 2017). Hence, each form of asset, a risk weight is assigned as an indication of how risky it is to hold the asset for the bank (Bank for International Settlements (BIS), 2017).

To find out the level of capital banks must hold to protect against losses which are not unexpected, the value of the asset i.e. the exposure is multiplied by the relevant risk weight so that it can be decided if the banks needs a smaller amount of capital to cover exposures to safer assets and/or larger amount of capital to cover riskier exposures (Bank for International Settlements (BIS), 2017).

$$\text{Capital Adequacy Ratio} = (\text{Tier I} + \text{Tier II}) / \text{Risk weighted assets}$$

Table 1: Capital Adequacy Ratios of Barclays PLC and HSBC Group PLC

Barclays Capital Adequacy Ratios 2014 - 2018						HSBC
Year	2014	2015	2016	2017	2018	2018
Tier 1 Capital	46020	46173	51993	50376	49317	13896
Tier 2 Capital	15743	15930	15779	14270	12531	2930
Total Risk Weighted Assets	401900	358376	365649	313033	311798	91839
Capital Adequacy Ratio (%)	15.4%	17.3%	18.5%	20.7%	19.8%	18.3%

Source: The figures are from Barclays Pillar 3 Reports 2014 – 2018

Analysis of the Capital Adequacy Ratios Calculated in table 1

As it can be seen in the calculation on the above table 1, Barclays PLC's capital adequacy ratios have been going up over the years, from capital adequacy ratio of 15.4% in 2014 to 19.8% in 2018, which is very high compared to the 8% required level by the British regulators 2019. On the other hand, HSBC which was benchmarked against Barclays had a capital adequacy ratio of 18.3% in 2018. Although HSBC's CAR is slightly less than that of Barclays, it is still high and way above the 8% minimum required by British regulators 2019.

This indicates that both Barclays PLC and HSBC PLC are able to cover the risk in their books for the assets the bank holds. This means that both banks are in a healthy and safe zone and are maintaining well above the required minimum capital. Therefore, in the event of unexpected losses both Barclays and HSBC are less likely to become insolvent.

Liquidity and Asset quality ratios of Barclays PLC and Comparison to Major Competitor

Liquidity Coverage Ratio (LCR)

According to (Saunders & Cornett, 2018) the aim Liquidity coverage ratio (LCR) is to ensure that the bank keeps enough level of high-quality liquid assets (HQLA) that can be transformed into cash to meet liquidity needs for at least a 30-day time horizon in situation of an “acute liquidity stress scenario” specified by the supervisors (Saunders & Cornett, 2018). The specified scenario can be both institution-specific and systemic shocks that are based on actual circumstances experienced in the global financial crisis. Moreover, maintenance of the LCR is intended to ensure that the bank can survive a severe liquidity stress scenario for at least 30 days and thus, the LCR is reported to supervisors monthly (Saunders & Cornett, 2018). Liquidity Coverage Ratio is calculated as follows:

$$\text{Liquidity coverage ratio} = \frac{\text{Stock of high-quality liquid assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

Table 2: Liquidity Coverage Ratios of Barclays PLC and HSBC PLC

Barclays Liquidity Coverage Ratios 2014 - 2018					HSBC
Year	2015	2016	2017	2018	2018
Stock of High-Quality Liquid Assets (HQLA)	145	173	203944	220996	567
Total net Cash outflows	110	144	143533	144732	369
Liquidity Coverage Ratio (%)	132%	120%	142%	153%	154%

Source: The figures are from Barclays Pillar 3 Reports 2015 – 2018

Analysis of Liquidity Coverage Ratio (LCR)

Liquidity Coverage Ratio is fairly new and has been implemented in 2015. Hence, the calculation in table 2 covers Liquidity coverage ratios from 2015 – 2018. The table contains the LCR of Barclays PLC benchmarked against the LCR of HSBC PLC. As it can be seen in table 2 Barclays has substantially improved its LCR from 132% in 2015 to 153% in 2018. On the other hand, HSBC which was benchmarked against Barclays had LCR of 154% in 2018

which is very close and slightly higher than Barclays. Both banks have LCR which is well above the 100% minimum LCR required both by Basel III and Bank of England.

This indicates that both Barclays and HSBC have enough high liquid asset amounts which are well enough to fund cash outflows for 30 days or more in the event of financial crisis or financial shocks that have no advance warning.

Although, both Barclays and HSBC have maintained well above the required minimum, if they do not continuously improve and keep up their LCR they could run the risk of insolvency specially at the current situation of the UK economy where there is high uncertainty due to political changes such as Brexit.

Asset Quality Ratio

Asset Quality reflects the level of existing credit risk affiliated with the investment and loan portfolio, as well as off-balance sheet activities (Koch & MacDonald, 2015). Deteriorated loans have been one of the problems in the financial crisis i.e. when a bank gathers a lots of bad loans they find it difficult to repay their debts, because the total assets will lose its value (Koch & MacDonald, 2015).

Asset quality ratio = Loan Impairment charges / Total assets

Table 3: Asset Quality Ratios of Barclays PLC and HSBC PLC.

Barclays Asset Quality Ratios 2014 - 2018						HSBC
Year	2014	2015	2016	2017	2018	2018
Loan Impairment charges	2204	2097	2352	2333	1465	N/A
Total Assets	1357906	1120012	1213126	1133248	1133283	2558124
Asset Quality Ratio (%)	0.16%	0.19%	0.19%	0.21%	0.13%	-

Source: The figures are from Barclays Pillar 3 Reports 2015 – 2018

From the figures in table 3, it can be seen that the quality of loans held Barclays bank has substantially improved from 0.21% in 2017 to 0.13% in 2018. This means that Barclays bank has significantly improved the credit risk associated with their operations. On the other hand, HSBC had not declared its loan impairment charges for the year 2018, thus, the asset quality ratio of HSBC cannot be calculated and hence, cannot be benchmarked against Barclays.

Part B – Critical Review of Financial risks Barclays PLC faces and Strategies of Mitigating the risks.

Financial Risks

In today's fast paced and interconnected world, banks are facing more risks than ever. Financial institutions such as Barclays bank have the objective to increase the corporation's returns for its shareholders under tough economic environment. Therefore, it is inevitable for financial institutions like Barclays to take risks, since the returns they expect from their business decisions come at an increased cost of risk.

Banks face wide variety of risks. According to Bank of England 2019, the three biggest risks faced by banks are credit risk, market risk and operational risk. In this report all these three risks will be discussed together with foreign exchange and liquidity risk.

Credit Risk

Credit risk is one of the biggest risks that affect financial institutions, particularly banks. It arises from the possibility that cash flows promised on financial claims held by the financial institutions such as bonds or loans, will not be fully paid. Although all kinds of financial institutions face this risk, Barclays as a bank is particularly more exposed to this risk as it is a depository institution which also makes long term loans and buys bonds with long maturities (Saunders & Cornett, 2018). When lending money to individual or a business there is always risk that they may fail to pay back, hence this is a credit risk. Therefore, according to bank of England, people and business who fail to meet their debt re-payment obligations pose the highest risk to banks.

Credit risks faced by Barclays are mainly attributed to various types of loans, mortgages, bonds and credit cards. Various forms of off-balance sheet activities and assets have several default prospects, for instance loans typically exhibit the highest credit risk (Koch & Scott, 2015). Some conditions are difficult to predict, for instance the general situation of the economy and the environment in which firm's operate can change the cash flow available for service like debt, thus, similarly someone's ability to payback debts varies with employment changes and changes to their personal net worth (Koch & Scott, 2015). Hence it is impossible to avoid risk as banks lend money by assuming that the borrower will repay them in full, but things can change due to various reasons and the borrower might default. Therefore, Barclays has credit

risk assessment team, that use several measures to identify, evaluate, sanction, mitigate and reduce the impact of the risks Barclays faces.

To actively mitigate credit risks Barclays bank employs the following strategies and techniques. These strategies and techniques can be split into the following three:

1. Netting and set-off

(Barclays PLC, 2018) states that by applying netting and set-off technique, the bank can reduce its credit risk exposures i.e. in exposure terms, compared with other risk mitigation techniques this credit risk mitigation technique has the largest overall impact on net exposure to derivative transactions (Barclays PLC, 2018).

With regards to derivative transactions, Barclays Bank's has counterparties with which the bank usually enters into standard master agreements. These master agreements with counterparties normally enable the netting of credit risk exposure to a counterparty and they may also minimise settlement exposure e.g. for foreign exchange transactions through the allowance of payments on the same day and in the same currency in order to set-off against one another (Barclays PLC, 2018).

2. Collateral

Barclays can call on collateral i.e. seize a property such as house or a car etc., if there is a default of the counterparty, comprising:

Home loans:

The value of collateral is affected by the conditions property market which drives demand and thus the value of the property. Barclays bank holds the property as a collateral to mitigate the risk of payment failure and regularly assesses the collateral value against the loan amount (Barclays PLC, 2018).

Wholesale lending: with regards to wholesale lending, the bank holds appropriate property for example a property that is commercial and other forms of physical assets (Barclays PLC, 2018).

Reverse repurchase agreements: collateral normally consists of highly liquid securities which have been legally transferred to Barclays bank subject to an agreement to return them for a fixed price (Barclays PLC, 2018).

Financial guarantees and similar off-balance sheet commitments: Against these arrangements cash collateral is accepted to be held by Barclays (Barclays PLC, 2018).

3. Risk transfer

In order to transfer credit risk between counterparties a range of tools such as credit derivatives, guarantees and securitisation and credit insurance can be used, which mitigate credit risk in the following two main ways (Barclays PLC, 2018):

1. The overall credit risk is reduced when the risk is transferred to a counterparty which is more creditworthy than the original counterparty (Barclays PLC, 2018);
2. Both counterparties must default before a loss materialises if recourse to the first counterparty remains, which is less likely than the individual default of either counterparty, so credit risk is reduced (Barclays PLC, 2018).

There are also other measures Barclays bank undertakes to identify and mitigate risks, such as:

Credit History Check

The development in technology has made easier than ever for banks to somewhat mitigate risks by conducting credit history checks on individuals and businesses. In today's global and digital world almost every business and individual's credit history can be easily obtained through credit scoring agencies such as Equifax and Experian. Financial institutions such as Barclays can obtain a track record of an individual or a business's repayment behaviour. This gives an indication of the individual or the business's repayment conduct and their credit history character. Hence, it enables the bank to make a rational decision based on the result. Although, this does not give any guarantee that a good scoring client will repay their debt obligations, it somehow helps the bank as a bad score means that the client had previously had trouble in meeting their debt repayment obligations. Hence, Barclays conducts credit history check on each loan request.

Market Risk

Market risk is the existing and potential risk to stockholders' equity and earnings caused by adverse movements in market rates or prices. Barclays bank has an investment banking section, thus they are more exposed to changes that happen in the financial markets as they hold more financial assets for themselves and their customers such as bonds and shares (Saunders & Cornett, 2018). It is closely related to credit risk, interest rate risk and foreign exchange risk in

that as these risks increase or decrease the overall risk of the bank is affected. Hence, Saunders and Cornett (2018), state that market risk is the incremental risk incurred by the bank when there is a combination of credit risks, interest rate, foreign exchange and an active strategy of trading, particularly one that includes short trading horizons like a day (Saunders & Cornett, 2018). Theoretically, the trading portfolio of the bank can be distinguished from its portfolio of investment on the basis of time horizon and secondary market liquidity (Saunders & Cornett, 2018).

According to Barclays, the Market Risk in the bank comes from the risk management of the assets held within the liquidity pool. Therefore, the market risk in Barclays bank is minimal. To mitigate risk, transactions carrying market risk are executed by the Barclays bank's Treasury function (Barclays PLC, 2018).

Operational Risk

There are different operational risks faced by the bank that arise from human factors or due to external events (for example, fraud) where the root cause is not due to credit or market risks and inadequate or failed processes and systems that cause the risk of loss to the firm (Barclays PLC, 2018). In today's digital world, operational risk is closely associated with information technology and cybersecurity threats which not only Barclays the whole banking sectors is suffering (Koch & Scott, 2015).

According to bank of England 2019, operational risk is the third biggest risk exposed to bank. Consequently, Barclays has a strong system of internal controls in place, within which it operates and enables its business to be transacted and to take risk without exposing the bank to potential losses that are intolerable or damages to their reputation (Barclays PLC, 2018). Hence, to mitigate operational risk the bank has a comprehensive Enterprise Risk Management Framework (ERMF) that sets out the approach to internal governance which Barclays bank has adopted (Barclays PLC, 2018).

Liquidity Risk

Liquidity risk is the existing and possible risk to the market value of stockholder's equity and earnings that is caused by the bank's failure to meet payment or clearing obligations in a timely and cost-effective manner (Koch & Scott, 2015). Liquidity risk is highest when a bank does not have access to new sources of cash and is unable anticipate new loan demand or deposit withdrawals thus, risk can be the result of either funding problems or market liquidity risk (Koch & Scott, 2015).

Barclays bank states that, the effective management of liquidity is important to Barclays bank in maintaining the sustainability of the business and retaining the confidence of the financial markets. Therefore, to mitigate and manage liquidity risks Barclays has a control framework designed to maintain liquidity resources that are sufficient in amount and quality and funding tenor profile that is adequate to meet the liquidity risk appetite as expressed by the Barclays bank's board based on internal and regulatory liquidity metrics (Barclays PLC, 2018). This is accomplished through a combination of governance and review, policy formation, analysis, stress testing, limit setting and monitoring, which together meets internal and regulatory requirements of the bank (Barclays PLC, 2018).

Reputation Risk

(Koch & Scott, 2015) define reputational risk as the risk that is caused by publicity that is negative, whether it contains true information or untrue, and can badly affect the customer base of the bank or lead to a costly lawsuits thus, negatively affecting profitability (Koch & Scott, 2015). These are risks that are impossible to measure as they are basically unforeseen. Even though, it is difficult to measure and manage reputational risk, Barclays can mitigate this risk by ensuring that consistent and effective training is given to the bank's employees, so that they are well aware of how to communicate with external customers and also the way they should properly handle and deliver customer information (Koch & Scott, 2015).

According Barclays bank, for reputation risk the bank has set tolerances that consider the risks caused by particular decisions or events and longer-term strategic themes, due to which the main accountability for managing reputational risk lies with each component of Barclays's business, where there are certain procedures set by the bank to recognise, evaluate and manage reputational risks and issues (Barclays PLC, 2018). Hence, Barclays aims to establish and retain with its clients and customers a long-term beneficial relationship which means taking responsibility for understanding their needs and offering them with products and services that fulfil those needs accordingly and help them manage their financial affairs (Barclays PLC, 2018).

Part C - Critical review of the Efficient Market Hypothesis (EMH) and its relevance to modern banking in relation to operational risks.

Efficient Market Hypothesis

Efficient Market Hypothesis (EMH) also known as the theory of efficient capital markets argues that the prices of securities in financial markets fully reflect all the information which is available (Mishkin & Eakins, 2012). Therefore, to completely understand the impact of expectations on securities prices, we need to look at the way information in the market affects these prices (Mishkin & Eakins, 2012).

Efficient market hypothesis is one of the earliest and most influential modern asset pricing theories, although there are extended number of papers that criticise. Eugene Fama (1965) defined efficient market as market in which there is a large number of rational, profit-maximisers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants (Fama, 1965). Hence, in an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future (Fama, 1965). Therefore, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value (Fama, 1965).

Fama (1970), further categorised market efficiency in to three categories, first one is weak form market efficiency, which argues that market prices cannot be predicted based on the past information and historical price movements of stock. The second one is semi-strong form, argues that prices adjust rapidly based on public and market information, e.g. political or economic events or earning announcements. Finally, the third one is strong form, which argues that no investor has monopolistic access to information as the prices reflect all market, public and private information (Fama, 1970).

Strong Form (All Public and Private Information)
Semi-Strong Form (All Public Information)
Weak Form (All Security Market Information)

Source: (Fama, 1970)

Efficient Market Hypothesis and its relevance to modern banking in relation to operational risks.

It is believed that EMH contributes to the risk of financial crisis and also is a risk to the bank's operations. In relation to operational risks EMH can have severe consequences for today's modern banking. The impact can come either from the bank's investors, regulators and management.

Jeremy Grantham a well-known market strategist has famously argued that EMH theory is "responsible for the financial crisis which started 2007" because of the role it plays in the "chronic underestimation of the dangers of asset bubbles" by regulators and financial executives (Ball, 2009). He argued that the idea of EMH which states that competitive financial markets exploit all available information when setting security prices is not necessarily true. His argument was that, prior to the financial crisis both regulators and investors were influenced and misled by the EMH notion that market prices reflect all of the information that is available, hence, investors and regulators felt it was unnecessary to check and validate the accurate values of securities that were traded publicly, and so had failed to detect an asset price "bubble." (Ball, 2009).

From this argument we can deduce that investors, regulators and Bank managers can make bad decisions based on the assumption of EMH theory, although sometimes the situation could be different and therefore, market prices might not reflect the real concrete information available. Lehman Brothers is an example of a bank that miscalculated the price of risk. The prices at the time did not reflect true risk, thus, leading the bank to become illiquid and insolvent which eventually led to its collapse. Therefore, although EMH is a very important theory, it has limitations that could lead to an unexpected operational risk such as falling into liquidity crisis by making the wrong investment decision. On the other hand, apart from the investor, regulator and managers perspective, EMH could also cause major operational risks to banks.

Part D - Empirical literature review on the role of regulators in averting the future banking financial crisis or financial system failure.

The global financial crisis that occurred from August 2007 had shed light on the flaws in the global financial institutions. In today's global world, financial institutions are highly interconnected. Thus, although the financial crisis started from the U.S banking sector in August 2007, the crisis quickly spread to different business sectors and countries of the world. This had led both businesses and consumers to lose trust and confidence on each other, making it more difficult for banks to lend money and for consumers to trust banks and deposit their money. Since then, the world has realised that self-regulation of financial institutions doesn't work well and that there is a need for a proper regulatory framework from the authorities to prevent the same mistake happening again (Wagner, 2010).

A lot of papers had been written about the causes of financial crises. Neuhauser et al. (2015), agree that the main causes were basically related to insufficient regulations, bad policies and incorrect credit rating of banks (Neuhauser, 2015). By treating every bank differently, both regulators and credit rating agencies did not clearly understand the externalities that contributed to the systematic risk associated with interconnected financial systems and its dangers, such as the holdings of securities issued by other parties, the high level of exposure within financial institutions caused by interbank loans etc (Wagner, 2010).

There is no doubt that there are many factors that play key role in triggering financial crisis, and that financial crisis do not happen overnight but are built over time. Nevertheless, while the actions of greedy bankers have certainly played their role in the crisis of sub-prime mortgage and financial instability as a whole, Caprio et al. (2008), argue that a global failure of proper regulations and supervision of the financial institutions were eventually to blame for the crisis. From this argument we can deduce that even if the financial institutions regulate themselves well, without proper government regulations and supervisions, they are more likely to go off track and cause financial instability at some point.

To mitigate the risk of financial instability, governments need to have proper regulations and supervision in place. Gordon (2000) states that regulation often comes after a disaster, whether that disaster is domestic or international governments act in isolation and introduce national regulations. thus, financial institutions bypass the national regulations through financial innovation and other techniques such as cross border regulatory arbitrage (Moshirian, 2010).

Hence, financial institutions should be continuously assessed critically. Moreover, it is significant for governments to closely cooperate with their international counterparts that have close connections with their financial institutions in order to ensure that they mitigate risks that are more likely to affect their markets in the event of financial crisis. This is because of the fact that, in today's global world, the financial institutions of some countries are more interconnected than others e.g. the US and the UK, thus, the reason why the 2007 financial crisis which started from the US had impact on the financial institutions in the UK.

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