CHAPTER II

LITERATURE REVIEW

2.1 Theoretical Background

1. Bank

   According to Indonesian law of UU No. 10 Th. 1998, banking institutions are those who gather funds from society in a form of savings and distribute them back to society in a form of credit or others in purpose to raise the wealth of the society. There are several types of commercial conventional banks operating in Indonesia, and they are classified as followings:

   a. State-owned bank

      State owned bank is a financial institution that has been chartered by a state to provide commercial banking. A state bank is not the same as a central or reserve bank because those banks are primarily concerned with influencing a government's monetary policy (Investopedia, 2014).

   b. Foreign exchange commercial bank

      Foreign exchange commercial bank is a commercial bank that can engage a transaction in foreign currency by fulfilling the requirements set by Bank Indonesia (OJK, 2013).

c. Non-foreign exchange commercial bank

Non-foreign exchange commercial bank is a commercial bank which is not yet allowed to engage in a transaction involving foreign currency. In order to be able to obtain the permission, non-foreign exchange commercial bank must fulfill the requirements set by Bank Indonesia.

d. Foreign-owned bank

Foreign-owned bank is a bank with head office outside the country in which it is located (OECD, 2001). Meanwhile in Indonesia, the redefinition of foreign-owned bank is attempted. According to Mulya E. Siregar statement as Deputy of Banking Supervisory in OJK, foreign-owned bank is so far defined as a foreign banking institution which opens its branch in Indonesia, thus a redefinition is considered needed (Antara News, 2014).

2. Capital Requirement

Capital requirement, also known as regulatory capital, is an amount of money that a bank or other financial organization must have available in relation to the amount that it has lent (Cambridge University Press, 2015). In the EU, capital requirement is also known as Capital Requirements Directive (CRD) that governs the amount of capital banks and other financial institutions are required to hold with respect in respect of credit risk. These requirements are put into place to ensure that these

institutions understand the risks and valuations of their securitization positions, and have detailed performance and monitoring systems in place (Hawken and Bake, 2009). When a registered bank falls below the minimum capital requirements, it must present a plan to the Reserve Bank (which is publicly disclosed) aimed at restoring capital adequacy ratios to at least the minimum level required (Reserve Bank of New Zealand, 2007).

The regulator may set a capital requirement with the obvious intention to keep banks operating with a higher capital ratio. A breach of the capital requirement will usually raise a regulatory intervention to alert banks and make them holding more capital than required, in order to avoid or reduce the undesired results of a breach. Milne (2002) stated that capital requirement acts as an incentive mechanism in which a breach would be considered as a "warning", in which banks that experienced the condition would be given a penalty (as cited in Alfon et al., 2004). By implementing that kind of incentive, it is expected that banks would want to hold their capital ratio more than the regulatory minimum.

Aggarwal and Jacques (1998) in their research showed that regulatory action linked to the Federal Deposit Insurance Corporation Improvement Act was effective in getting US banks simultaneously to increase their capital ratios and reduce their portfolio risk (as cited in Alfon et al., 2004). In relation with this finding, Alfon et al. (2004) then conducted discussions with several firms. The results indicated that the

firms considered capital requirements as the absolute minimum for capital rather than a sort of target and regulatory breach might be regarded as comparable to an act of “deceiving customers” which might affect to their position in the market.

3. Risk-Weighted Asset

For banks, risk-weighted assets are assets with special risks, especially loans to customers and other financial institutions or governments, weighted according to different levels of possible default (Cambridge University Press, 2013). As risk is calculated differently for each type of loan, Basel II set out a procedure of determining the different risk levels in order to determine a bank's real world exposure to potential losses. According to the regulation, a loan secured by property is less risky and given a lower multiplier than one that is unsecured (Hingel, 2015). For example, a loan secured by a letter of credit would be weighted as riskier than one secured by collateral. Regulators then use the risk weighted total to calculate how much loss-absorbing capital a bank needs to sustain it through difficult markets.

Under the Basel II banking accord, which still governs most risk-weighting decisions, government bonds with ratings above AA- have a weight of 0 per cent; corporate loans rated above AA- are weighted 20 per cent, etc. The rules also attempt to classify assets by their credit risk, operational risk and market risk (Hingel, 2015).

According to the rule proposed by Federal Reserve Board (2006), to calculate credit risk-weighted assets, a bank must group its exposures into these following four general categories:

a. Wholesale exposures

The proposed rule defines a wholesale exposure as a credit exposure to a company, individual, sovereign or governmental entity (other than a securitization exposure, retail exposure, or equity exposure). The term "company" is broadly defined to mean a corporation, partnership, limited liability company, depository institution, business trust, SPE, association, or similar organization. Examples of a wholesale exposure include: (i) a non-tranched guarantee issued by a bank on behalf of a company; (ii) a repo-style transaction entered into by a bank with a company and any other transaction in which a bank posts collateral to a company and faces counterparty credit risk; (iii) an exposure that the bank treats as a covered position under the MRA for which there is a counterparty credit risk charge in section 32 of the proposed rule; (iv) a sale of corporate loans by a bank to a third party in which the bank retains full recourse; (v) an OTC derivative contract entered into by a bank with a company; (vi) an exposure to an individual that is not managed by the bank as part of a segment of exposures with homogeneous risk characteristics; and (vii) a commercial lease.

b. Retail exposures

Under the proposed rule a retail exposure would generally include exposures (other than securitization exposures or equity exposures) to individual or small businesses that are managed as part of a segment of similar exposures, that is, not on an individual-exposure basis. Under the proposed rule, there are three subcategories of retail exposure: (i) residential mortgage exposures; (ii) QREs; and (iii) other retail exposures. The agencies propose generally to define residential mortgage exposure as an exposure that is primarily secured by a first or subsequent lien on one-to-four-family residential property. This includes both term loans and revolving home equity lines of credit (HELOCs). An exposure primarily secured by a first or subsequent lien on residential property that is not one-to-four family would also be included as a residential mortgage exposure as long as the exposure has both an original and current outstanding amount of no more than $1 million. There would be no upper limit on the size of an exposure that is secured by one-to-four-family residential properties. To be a residential mortgage exposure, the bank must manage the exposure as part of a segment of exposures with homogeneous risk characteristics. Residential mortgage loans that are managed on an individual basis, rather than managed as part of a segment, would be categorized as wholesale exposures.

QREs would be defined as exposures to individuals that are (i) revolving, unsecured, and unconditionally cancelable by the bank to the fullest extent permitted by Federal law; (ii) have a maximum exposure amount (drawn plus undrawn) of up to $100,000; and (iii) are managed as part of a segment with homogeneous risk characteristics. In practice, QREs typically would include exposures where customers' outstanding borrowings are permitted to fluctuate based on their decisions to borrow and repay, up to a limit established by the bank. Most credit card exposures to individuals and overdraft lines on individual checking accounts would be QREs.

The category of other retail exposures would include two types of exposures. First, all exposures to individuals for non-business purposes (other than residential mortgage exposures and QREs) that are managed as part of a segment of similar exposures would be other retail exposures. Such exposures may include personal term loans, margin loans, auto loans and leases, credit card accounts with credit lines above $100,000, and student loans. The agencies are not proposing an upper limit on the size of these types of retail exposures to individuals. Second, exposures to individuals or companies for business purposes (other than residential mortgage exposures and QREs), up to a single-borrower exposure threshold of $1 million, that are managed as part of a segment of similar exposures would be other retail exposures.

c. Securitization exposures

The proposed rule defines a securitization exposure as an on-balance sheet or off-balance sheet credit exposure that arises from a traditional or synthetic securitization. A traditional securitization is a transaction in which (i) all or a portion of the credit risk of one or more underlying exposures is transferred to one or more third parties other than through the use of credit derivatives or guarantees; (ii) the credit risk associated with the underlying exposures has been separated into at least two tranches reflecting different levels of seniority; (iii) performance of the securitization exposures depends on the performance of the underlying exposures; and (iv) all or substantially all of the underlying exposures are financial exposures. Examples of financial exposures are loans, commitments, receivables, asset-backed securities, mortgage-backed securities, corporate bonds, equity securities, or credit derivatives.

A synthetic securitization is a transaction which has similar characteristics to traditional securitization, in which it also includes tranched cover or guarantee arrangements – that is, arrangements in which an entity transfers a portion of the credit risk of an underlying exposure to one or more other guarantors or credit derivative providers but also retains a portion of the credit risk, where the risk transferred and the risk retained are of different seniority levels.

Provided that there is a tranching of credit risk, securitization exposures also could include, among other things, asset-backed and mortgage-backed securities; loans, lines of credit, liquidity facilities, and financial standby letters of credit; credit derivatives and guarantees; loan servicing assets; servicer cash advance facilities; reserve accounts; credit-enhancing representations and warranties; and CEIOs. Securitization exposures also could include assets sold with retained tranched recourse. Both the designation of exposures as securitization exposures and the calculation of risk-based capital requirements for securitization exposures will be guided by the economic substance of a transaction rather than its legal form.

d. Equity exposures

The proposed rule defines an equity exposure to mean:

(i) A security or instrument whether voting or non-voting that represents a direct or indirect ownership interest in, and a residual claim on, the assets and income of a company, unless: (A) the issuing company is consolidated with the bank under GAAP; (B) the bank is required to deduct the ownership interest from tier 1 or tier 2 capital; (C) the ownership interest is redeemable; (D) the ownership interest incorporates a payment or other similar obligation on the part of the issuing company (such as an obligation to pay periodic interest); or (E) the ownership interest is a securitization exposure. (ii) A security or instrument that is mandatorily convertible into a security or

instrument described in (i). (iii) An option or warrant that is exercisable for a security or instrument described in (i). (iv) Any other security or instrument (other than a securitization exposure) to the extent the return on the security or instrument is based on the performance of security or instrument described in (i). For example, a short position in an equity security or a total return equity swap would be characterized as an equity exposure.

The agencies note that, as a general matter, each of a bank's exposures will fit in one and only one exposure category. One principal exception to this rule is that equity derivatives generally will meet the definition of an equity exposure (because of the bank's exposure to the underlying equity security) and the definition of a wholesale exposure (because of the bank's credit risk exposure to the counterparty). In such cases, as discussed in more detail below, the bank's risk-based capital requirement for the derivative generally would be the sum of its risk-based capital requirement for the derivative counterparty credit risk and for the underlying exposure.

4. Risk-based Capital Ratio

Risk-based capital ratio or also known as capital adequacy ratio is a measurement of bank’s core capital to the assets and off-balance liabilities weighted by the risk. This ratio describes the ability of the core capital of the bank to absorb the potential losses due to the risk of the banking activities. The bank is expected to keep its value of regulatory capital

above the minimum specified capital requirement (Bialas and Solek, 2010).

Capital ratio below the minimum specified level indicates that the bank has not been adequately capitalized to expand its operations. As stated by Matten (1998) in his research, low capital ratios seem to be associated with low credit rating (as cited in Alfon et al., 2004). A credit rating is an agency's opinion about the ability and willingness of a debt issuer, such as a corporation or state or city government, to meet its financial obligations in full and on time. Credit ratings can also speak to the credit quality of an individual debt issue and its default relative likelihood (Standard & Poor's Financial Services LLC, 2012). Lower credit ratings result in higher borrowing costs because the borrower is deemed to carry a higher risk of default. It also means that the investors would demand to be paid more to compensate for the risk of holding debts with low credit ratings (Telegraph Media Group Limited, 2011).

On the other hand, according to Alfon et al. (2004), high levels of capital above the regulatory requirement offered a better risk evasion which might benefit managers and guaranteed a job security. The management also puts a consideration to a positive sentiment from the market for being well capitalized even when they also have good risk management. As a result, firms may use additional capital to complement their risk management and internal systems and controls which will make the firms end up having excess capital.

Alfon et al. (2004) also emphasized that excess capital which was indicated by a higher capital ratio may arise from the firm's need to finance its long term strategy. The motive behind this is the firms' perception that the market prefers any extra capital needed for growth to be financed from retained earnings. Another possible reason for the importance of long-term strategy when deciding capital may be the desire to maintain a degree of operational flexibility and the extent to which the firm wishes to pre-fund future merger and acquisitions (M&A).

Capital ratio is also considered as a relevant area for competition by similar competing firms. Lindquist (2004) stated in his research that there was evidence in which the competitors' buffer capital could affect the size of the firm's buffer, although it was not too significant (as cited in Alfon et al., 2004). In a research conducted by Alfon et al. (2004), it was suggested that the capital ratios of firms in similar industry were the center point for competition in capital markets.

5. Tier 1 Capital

Tier I capital is core capital which includes only permanent shareholders' equity (issued and fully paid ordinary shares and common stock and perpetual non-cumulative preference shares) and disclosed reserves (created or increased by appropriations of retained earnings or other surplus, e.g. share premiums, retained profit, general reserves and legal reserves) while deducting goodwill (Baltali and Tanega, 2011). Tier one capital is the best form of bank capital - the money that the bank has

in its coffers to support all the risks it takes: lending, trading and so on (Masters & Jenkins, 2015).

6. Tier 2 Capital

Under capital adequacy regulations meant to ensure banks keep enough money on hand, the capital structure of the bank consists of Tier 1 and Tier 2. Tier 2 capital is supplementary capital that is more complex and consists of revaluation reserves, undisclosed reserves, general loan-loss reserves, hybrid instruments, and subordinated term debt (Bank for International Settlements, 2006).

7. Subordinated Debt

Subordinated debt is a kind of debt that is ranked below other debt in terms of claims on assets. In the case of a default, the holder of subordinated debt (also called junior debt) cannot satisfy claims on the borrower's assets until the claims of the holders of senior debt are met (Financial Times, 2015). Subordinated term debt instruments have significant deficiencies as constituents of capital in view of their fixed maturity and inability to absorb losses except in liquidation. These deficiencies justify an additional restriction on the amount of such debt capital which is eligible for inclusion within the capital base. Consequently, it has been concluded that subordinated term debt instruments with a minimum original term to maturity of over five years may be included within the supplementary elements of capital, but only to

a maximum of 50% of the core capital element and subject to adequate amortization arrangements (Bank for International Settlements, 2006).

8. Return on Equity (ROE)

Because benefiting shareholders is generally company's goal, ROE is, in an accounting sense, the true bottom-line measure of performance. By definition, Return on Equity is a measure of how the stockholders fared during the year (Ross et al., 2003). ROE is often said to be the ultimate ratio or 'mother of all ratios' that can be obtained from a company's financial statement. A company can only create shareholder value, economic profits, if the ROE is greater than its cost of equity capital (the expected return shareholders require for investing in the company given the particular risk of the company) (André, 2015).

9. Market Discipline

Market discipline in the banking sector can be described as a situation in which private sector agents including depositors, creditors, and stockholders face costs that are increasing in the risks undertaken by banks and take action on the basis of these costs (Hosono et al., 2005).

2.2 Previous Research Findings

The identified relationship between capital requirements and capital ratios has grown interest to the regulators and researchers. Regulatory capital requirement which is one of a host factor depends on firm specific as well as broader macroeconomic perception. Banks' response in changing the state of key

variables is in line with their cost of raising additional capital which depends on their organization and economic condition. A study from Jackson et al. (1993) also approved this statement, where cost of capital and perceived magnitude of safety net were different in each banks, thus creating a different competitive reactions and positions in each active bank.

Bank's choice of capital and its risk-based capital management practices have been written in many papers. In many of these papers, a trade-off between the benefits and costs of raising additional capital has been quite a topic for a bank to consider. The issue involves weighing factors that have influences on costs and benefits in holding too much versus too little capital, with the search of optimization of the costs and benefits as a primary aim for the banks.

Estrella (2001) presented dynamic model of optimal bank capital in which the bank optimized over costs associated with failure, holding capital, and flows of external capital. According to the research, bank's effort of optimization was related to period-by-period value-at-risk (var), which had a negative relationship with the change in the optimal level of total capital, while it had a positive relationship with the net changes in the external capital flows.

Another research by Alfon et al. (2004), examined that the decision of bank's capital is dependent to its internal risk assessment. The research suggests that capital requirements and banks' capital ratios are positively correlated, while the relationship between capital ratio and risk is estimated to be negative. In other words, the higher the risk appetite of a firm, the less capital it holds.

Survey findings in the research also noted that the practice of holding excess capital might arise from the firm's need to finance its long term strategy. It was meant to maintain a degree of operational flexibility, as well as avoiding adjustment costs associated with raising additional capital.

The practice of holding excess capital implies that banks are considering opportunity cost of capital which persuades banks to do so. Research findings from Alfon et al. (2004) was somehow indecisive about the relationship between capital and return on equity which in their analysis became the proxy of opportunity cost of capital. They reported a significant positive relationship, if adjustment costs of raising additional capital were taken into account, while if no adjustment was taken, then there will be a weak negative relationships. This opportunity cost of raising additional capital will be the key consideration for banks to hold excess capital. However, the lack of statistical significance of the return on equity (ROE) as a proxy of opportunity cost of capital makes the results on ROE must be treated with caution (Alfon et al., 2004).

Banks indicate additional costs of raising new capital as transaction costs (e.g., fees to investment banks and lawyers) as well as indirect costs (e.g., movement in stock prices through signaling effect) which are influenced by the state of the economy (Francis and Osborne, 2010). These costs are more pronounced during economic downturn, when banks usually need more capital to sustain their operation. Alfon et al. (2004) in their research stated that maintaining more capital in hand as capital cushion is important to deal against an economic downturn.

Banks do consider the trade-off between quantity and quality when deciding on their capital structures. A study by Myers and Maljuf (1984) suggested that Tier 1 capital (consisting of common equity capital), is more costly to be raised than Tier 2 capital (including some forms of subordinated debts). They also emphasized that external financing by debt was better than financing by equity in a condition when managers had superior information. These reasons also suggest that banks will always search for an optimal capital structure (a mix of Tier 1 and Tier 2 capital) based on their risk profiles. Regulatory capital and market constraints apparently have an effect to this optimization process in terms of quantity and quality of capital that banks will hold (Francis and Osborne, 2010). This effect will be discussed further by including a measure of the quality of the capital (the proportion of Tier 1 capital to total regulatory capital) in the analysis of the research.

Alfon et al. (2004) indicated in their research that size of the financial institution does have a large influence on firm's capital management practices. Smaller banks choose to have higher capital ratios than larger banks. Moreover, the difference in capital ratio between small and large banks is much bigger than between the same-sized firms.

Previous research has found evidence that market discipline has an influence on banks capitalization. Since any firm's default probability is a function of both asset risk and leverage, maintaining a balance between risk and capital is essential in order to keep default probability constant (Flannery and Nikolova, 2004). Banks' stakeholders (creditors and depositors) can contain banks

to offer a higher rate of return if they assume a higher risk. Particularly for uninsured depositors, have appropriate incentives to take that action, because they are exposed to losses in the event of banks' failure (Nier and Baumann, 2003). In that case, it will be discussed further the issue of controlling market discipline (e.g., the extent to which bank uses subordinated debt) and analyzing the relationship of this measure with the capital requirement.

Table 2.1
Summary of Previous Research Findings

Title/ Researcher/ Year	Conclusion(s)
Capital Requirements and Bank Behaviour: The Impact of the Basel Accord (Jackson et al.,1999)	Cost of capital and perceived magnitude of safety net are different in each banks, thus creating a different competitive reactions and positions in each active bank.
The Cyclical Behavior of An Optimal Bank Capital (Estrella, 2001)	Bank's effort of optimization is related to period-by-period value-at-risk (var), which has a negative relationship with the change in the optimal level of total capital, while it has a positive relationship with the net changes in the external capital flows.
What Determines How Much Capital is Held by UK Banks and Building Societies (Alfon et al., 2004)	The amount of capital held by banks and building societies depends on risk management, market discipline and regulatory environment.
On the Behavior and Determinants of Risk-Based Capital Ratios: Revisiting the Evidence from UK Banking Institutions (Francis and Osborne,2010)	There is a significant relationship between UK banks' risk-based capital ratios and individual capital requirements. Different behaviors are shown by various factors which affect capital management practices.

Corporate Financing and Investment Decisions When Firms Have Information The Investors Do Not Have (Myers and Majluf, 1984)	In a condition when firm's managers have superior information, it is generally better to issue safe securities than risky one. Firms should go to bond market for external capital, but raise equity by retention if possible. That is, external financing using debt is better than financing by equity.
Market Discipline of U.S. Financial Firms: Recent Evidence and Research Issues (Flannery and Nikolova, 2004)	Market discipline has an influence on banks capitalization in which it could affect firm's capitalization
Are Capital Buffers Pro-cyclical? Evidence from Spanish Panel Data (Ayuso et al., 2004)	Fairly robust and significant negative relationship between the capital buffers and the business cycle.
The Cyclical Behaviour of European Bank Capital Buffers (Jokipii and Milne, 2007)	Capital buffers of the banks in the in the EU15 have a significant negative co-movement with the cycle.
Banks' Regulatory Capital Buffer and the Business Cycle: Evidence for German Savings and Cooperative Banks (Stolz and Wedow, 2005)	Strong evidence that capital buffers behave anticyclically, the capital buffers of savings banks reacting more strongly to the business cycle than the capital buffers of cooperative banks. Further, banks with low capital buffers react differently to the business cycle than banks with relatively higher capital buffers.
Market Discipline and Financial Stability: Some Empirical Evidence (Nier and Baumann, 2003)	Market discipline has an influence on banks capitalization and banks stakeholders can contain banks to offer a higher rate of return if they assume a higher risk in due to a loss exposure of bank's failure.

2.3 Hypothesis Development

Based on the previous theoretical and research discussions, these are several hypotheses that can be proposed in this research:

1. Francis and Osborne (2010) and Alfon et al. (2004) previously suggested in their research that capital requirement is positively correlated with banks' capital ratios.

   Ha_1 = Capital requirement set by Bank Indonesia affects banks in terms of their capital.

2. Alfon et al. (2004) stated in their research that size the relationship between capital ratio and risk is estimated to be negative. They were somewhat indecisive about the relationship between capital ratio and coefficient on variable return on equity (ROE). They reported a significant positive relationship, if adjustment costs of raising additional capital were taken into account, while if no adjustment was taken then there will be a weak negative relationship. Later, Alfon et al. indicated in their research that size of the financial institution does have a large influence on firm's capital management practices. Smaller banks choose to have higher capital ratios than larger banks, which means that the expected result is probably a negative relationship between size of the banks and their capital ratio.

   Nier and Baumann (2003) in their previous research had found evidence that market discipline has an influence on banks capitalization. Banks stakeholders (creditors and depositors) can contain banks to offer a higher rate of return if they assume a higher risk. Particularly for uninsured depositors, they have appropriate incentives to take that action, because they are exposed to losses in the event of banks' failure.

Ha_2 = Characteristics of the bank (size, composition of capital structure, risk, exposure to market discipline) have influences on capital ratio.

3. The trade-off between quantity and quality is considered when deciding on their capital structures. Myers and Maljuf (1984) in their research suggested that Tier 1 capital (consists of common equity capital) is more costly to be raised than Tier 2 capital (includes some forms of subordinated debts). Banks will always search for an optimal capital structure (a mix of Tier 1 and Tier 2 capital) based on their risk profiles and the decision later would affect their capital ratio.

Ha_3 = Quality of capital has an influence on bank's capital ratio.

The summary of variables' relationships to the capital ratio will be summarized in Table 2.3 below.

Table 2.2
Expected Variables' Relationships to the Capital Ratio

Variable	Relationship(s) to The Capital Ratio
Capital Requirement (CR)	Positive (+)
Size (SIZE)	Negative (-)
Risk (LRISK)	Negative (-)
Return On Equity (ROE)	Positive (+) or Negative (-)
Market Discipline (MARKET)	Positive (+)
Quality of Capital (TIER1)	Positive (+)