HOUSING LOANS’ CREDIT RISKS FACTORS IN THAILAND COMMERCIAL BANKS

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Abstract—This paper aims to investigate the risk factors that influence the housing loan’s approval processes in Thailand’s 5 largest commercial banks, with the largest amount of Non Performing Loan (NPL) in the housing loan segment. The authors use the qualitative content analysis technique to analyse the data obtained from interviewing 15 selected informants including, Mortgage Sales (Housing loan), Retail Credit Analyst, and Credit Risk Analyst. We also propose the instruments, derived from both qualitative and quantitative approaches, to assess the borrowers’ credit risk. The results from this study can be used as a benchmark for other Thai financial institutions as well as to improve the housing loan’s approval processes.

Keywords—component; Credit risk; housing loan; Thailand Commercial Bank; 6Cs; Risk Assessment

I. INTRODUCTION

House buyers (herein stated as “borrower”) naturally require a huge sum of funds in order to buy or possess their houses. They typically acquire that fund by borrowing from commercial banks. The customers may have some difficulty in repaying the loan [1]. On the other hand, the banks also hold the risk of losing the amount loaned to the customer, which is essentially regarded as “Credit risk” [2]. Credit risk is defined as the potential that a bank’s borrower or counterparty fail to meet its obligations in repaying the loan borrowing from banks or any financial institutions. According to this definition, banks need to manage the credit risk in their portfolio both at the individual borrower and transactional level, as well as to consider the relationships of credit risk and other types of risk. This is because these are criteria to assess the success/failure any banking lending activities [3].

The paper begins with exploring the credit risk analysis methods currently used by Thai commercial banks in the housing loan lending process. Then, the authors use the empirical results, gathered from selected Thai commercial banks’ representatives, to establish the comprehensive credit risk evaluation criteria to improve the housing loan approval process for the banks.

II. LITERATURE REVIEW

A. NPL in the Housing Loan Sector

As defined in IMF’s Compilation Guide on Financial Soundness Indicators 2004, Non Performing Loan (NPL) is a loan of which the payments of interest and/or principal are past due by 90 days or more, or interest payments equal to or greater than 90 days have been capitalised, refinanced, or delayed by agreement, or payments are less than 90 days overdue due to some reasons such as borrower’s bankruptcy and cannot make his/her payment in full [4]. This paper only focuses on the NPL in the housing and real estate sector of 5 largest Thai commercial banks because the real estate sector, particularly housing or residential, is the real productive sector drives the dynamic of other industries, and stabilise the whole national economic system [5].
Fig. 1. The amount of NPL of 5 largest Thai Commercial Banks (million baht) Q2 2013 - Q2 2014 (Y.O.Y)

According to figure 1 above, the amounts of NPL in housing sector may have less significant while comparing with overall housing loans of those Thai commercial banks, it is summarised that average percentage of NPL on housing loan of 5 largest banks at fiscal year-end 2013 is 7.56% and 7.70% in fiscal year-end 2014 respectively [6]. However, BOT also predicts that the cumulative percentages of NPL in housing loan sector tend to slightly increase. (see Table 1)

Due to the limitation of time, the authors only used all NPL and housing loan data of 2014 fiscal year, as 2015 financial reports of Bank of Thailand, and all 5 largest commercial banks had yet published.

**TABLE I. THE PORTIONS OF NPL AND HOUSING LOAN OF 5 LARGEST THAI COMMERCIAL BANK**

<table>
<thead>
<tr>
<th>Bank</th>
<th>NPL of Housing Loan 2013</th>
<th>NPL of Housing Loan 2014</th>
<th>% of NPL/Housing Loan 2013</th>
<th>% of NPL/Housing Loan 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>17,299</td>
<td>19,978</td>
<td>4.53%</td>
<td>4.72%</td>
</tr>
<tr>
<td>B</td>
<td>31,742</td>
<td>38,719</td>
<td>11.55%</td>
<td>8.76%</td>
</tr>
<tr>
<td>C</td>
<td>14,672</td>
<td>15,645</td>
<td>6.90%</td>
<td>7.05%</td>
</tr>
<tr>
<td>D</td>
<td>7,835</td>
<td>9,744</td>
<td>7.11%</td>
<td>7.94%</td>
</tr>
<tr>
<td>E</td>
<td>12,521</td>
<td>18,282</td>
<td>7.73%</td>
<td>10.01%</td>
</tr>
</tbody>
</table>

**B. Current Credit analyzing tools**

Thai Commercial banks currently employ the qualitative methods to evaluate the borrowers’ credit risk. These normally based on the 6Cs’ principles, comprising Character of borrower, Capacity in repaying load, Collateral, Capital, Conditions of lending contract, and Country/nationality of borrowers respectively. [7], [8], [9] identify 6Cs’ as:

1) **Character**
   Or the borrower’s personal profiles, behaviour in repaying loan, the pass records of loan borrowings etc. It is divided into 2 attributes as (1) Borrower’s personal profiles that include borrower’s behaviour, family, ages, personal integrity, or the borrowers’ reputations, and (2) Special capabilities of borrowers such as experience, personal specialty, wisdom or legal responsibilities [7].

2) **Capacity**
   It regards to the borrower’s abilities to find a source of fund to repay loans, in terms of personal loan. It also depends on the borrowers’ character (Bunnag, 2014) [3]

3) **Capital**
   This is measured by the ratio of the borrower’s equity on debts, or generally a D/E ratio, this ratio also helps the analysts to understand the financial situation of borrowers [7], [10].

4) **Collateral**
   It means properties, land, commodities or other assets pledged as security for repayment of a loan, to be forfeited in the event of a default [11]. Collateral is property or an object of value, which a credit grantor can take and sell in case of default. A secured loan is the loan which collateral is required as security to the lender, whereas, unsecured loan is one where there is no collateral required; just an agreement to repay what is owed as agreed [8].

5) **Conditions**
   The conditions of loan means factors often considered by the analyst when assessing the creditworthiness of the borrowers. These also include economic conditions affecting a borrower’s ability to repay, such as unemployment, seasonal work [8]

6) **Country**
   This factor regards to the original nation of the borrower, the source of funds that the borrower uses to repay the loan, and the international trading environment. This factor is strongly influenced by the political economic and social situation of both borrower and lender’s countries [5].

Banks may use whether the traditional financial ratios, such as Return on Investment (ROI), Return on
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Asset (ROA), or debt and coverage ratios such as Short-term Solvency Ratios and Capitalisation Rate [3], [9], [13] to quantify the borrower risks. Although these methods are simple, but they normally depend on the credit analyst’s experiences, and the past performance of the borrower, therefore, these cause more subjectivity and bias to users. This paper intends to investigate the related factors that have impact to a decision making for analysing risks, and proposes some appropriate credit risks assessment criteria for using in housing loan approving process.

III. RESEARCH METHODOLOGY

The research starts with an extensive literature review on the credit risk assessment criteria (6 Cs), currently employed by Thai commercial banks. The review includes the sub-criteria that need to consider the capabilities of the housing borrowers in order to develop the research variables and data collection instruments. The authors use the qualitative approach (structured interviews) to collect in-depth information from the selected 15 interviewees from the 5 largest Thai Commercial banks, consisting of large amount of housing loans, and Non Performing Loan (NPL). There are anonymously labelled as Bank “A”, Bank “B”, Bank “C”, Bank “D”, and Bank “E”, respectively, to protect the business confidentiality and the researchers’ etiquette. Three interviewees are selected from each mentioned bank, based on their roles and responsibilities in making decision towards the housing loan. Thus, the banks representatives include (1) 3 Mortgage sales (housing loan) (2) 3 Retail credit analysts, and (3) 3 Credit risk analysts (see Table 2) (see Table 1)

To facilitate the interviewing process, the authors develop the interview records and the ranking table, in order to gather the informants’ opinions and the rank of 6 Cs’ seriousness into the percentage (%), followed by the descriptive statistics to prioritise the level of 6 Cs’ factors, and the qualitative content analysis, using data gathered from interviewees to interpret, analyse, and synthesise all data, in order to explore the risk considerations and other related factors to credit risk. The final outcome of this paper is comprehensive assessment criteria to assess the Housing loans’ credit risk. Overall research stage is summarised in figure 2 below.

![Fig. 2. Research Methodology](image)

The data collection and analysis processes are divided into 2 phases. In the first phase, fifteen informants of the relevant department, relating to approving housing loan are interviewed, to collect their opinions towards the degree of 6 Cs’ impact, as well as the ranking of impacts of 6Cs (see Table 3). In the second phase, they describe the detail of the considered factors relating to credit risk while lending the housing loan. The factors from this phase help in forming the comprehensive 6Cs criteria for the further examining of the housing loan’s credit risk.

IV. RESULTS

A. First Phase Results

Each interviewee in 3 groups states his/her weight of 6 Cs’ level of consequences. The descriptive statistics, such as the percentages of total for each rank and the averages, are inferred for each group, before.
combining all results to prioritise the degree of 6 Cs’ seriousness.

According to Table 3, the groups of MS and CRA state that the Character factor contains the highest impact among other 6Cs, with an average of 35%, whilst RCA weighs this factor as the second priority. Capacity becomes the second highest impact factor, as the average weight of 33%, followed by the Collateral factor, with the average of 10%, the forth factor is Capital at 9.70%, which is slightly higher than Condition of 8.90%. Amongst these 6Cs, the all informants agree that the Country factor has the least significance, showing the impact degree of merely 3.10%. This can be partly explained that the Country factor is only a sub-criterion of the Condition factor, and is applied by [5], as a supplementary to sharpen the housing loan lending processes.

This phase findings confirms [5], [3], and [4] that Character factor contains the highest impact on risk assessment to overall housing loan approving process since this Character factor covers the necessary sub-criteria such as personal profiles of borrowers, loan repayment records and borrowers’ financial status, etc. The authors also investigate the sub-criteria that shall be included in this Character factor, as well as in the other five factors in 6Cs in the second phase of this study.

<table>
<thead>
<tr>
<th>6Cs Priority</th>
<th>Mortgage Sale (MS)</th>
<th>Retail Credit Analyst (RCA)</th>
<th>Credit Risk Analysis (CRA)</th>
<th>Average Weighted</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character</td>
<td>37.00</td>
<td>28.00</td>
<td>40.00</td>
<td>35.00</td>
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<tr>
<td>Capacity</td>
<td>30.00</td>
<td>39.00</td>
<td>31.00</td>
<td>33.30</td>
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</tr>
<tr>
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<td>8.00</td>
<td>11.00</td>
<td>11.00</td>
<td>10.00</td>
<td>3</td>
</tr>
<tr>
<td>Capital</td>
<td>9.00</td>
<td>8.00</td>
<td>12.00</td>
<td>9.70</td>
<td>4</td>
</tr>
<tr>
<td>Condition</td>
<td>10.00</td>
<td>10.60</td>
<td>6.00</td>
<td>8.90</td>
<td>5</td>
</tr>
<tr>
<td>Country</td>
<td>6.00</td>
<td>3.40</td>
<td>0.00</td>
<td>3.10</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**B. Second phase results**

The results in the first phase reveal that the Character factor has the highest impact, followed by Capacity, Collateral, Capital, Condition and Country, respectively (as shown in Table 3). In the second phase, the informants give the conclusive details for each 6 Cs, based on their opinions towards risk factors associated in the housing loan approval. The authors apply the qualitative content analysis to group the similar risk factors (or “Common risks considerations”) as well as distinguish their differences (Different risks considerations) of the total risk factors involved in each 6Cs criteria. All details of 6Cs risk factors are tabulated in Table 4 (Exhibit 1). The details can be summarised as follows:

1) Character

Referring to first phase results where Character is ranked as the highest factor among the 6Cs, the informants describe 3 common considerations while approving loan, which are: 1) Repayment records, 2) Age/Education, and 3) Work experience and position, respectively. However, RCA and CRA add that the Court prosecution records and Borrower’s financial status (for example, borrower’s account, cash in hand) are also important factors to consider in this category. These considerations are mostly regarded as the borrower’s internal factors as they are related to the borrower’s personal profiles, expenditure, including personal behaviour in repaying loan [13].

2) Capacity

This factor, representing the abilities to repay housing loan [7] consists of 4 common considerations including: 1) Borrowers’ debt, 2) Salary rate, 3) Stability of income and 4) Tax payment records. MS add the following factors of, namely, Type of business/revenue/selling amount, the borrower’s position in organisation, and the borrower’s working skills, whilst RCA mention that the borrower’s career/business, which associates with the risky or uncertainty activities (risky career/business) should be included in the criteria. Therefore, there are 8 considerations in this Capacity factor. Most of them are related to an evaluation of the borrower’s personal income, for example, salary rate and position of borrower in organisation, which means the higher position, the higher income that the borrower receives yearly. However, the informants explain that the expenditure and tax payment of the bowers must also be concerned, as the higher personal income, but higher expense, the capacity of repaying loan may be lower than expected [7], [8].

3) Capital

The common considerations to look into are borrowers’ saving accounts, saving behaviour, burden free assets, and working capital of the borrowers which are necessary in processing the housing loan. Most of the considerations in this Capital factor are related to the borrower’s monetary matters. MS and RCA also consider the factors of Capital shares and Sources of
capital as they are important for evaluating the loan repayment capacity of juristic person, especially when the borrower lacks Character and Capacity factors.

4) Collateral

In the case the borrower does not repay the loan, Thai commercial banks are able to foreclose and liquidate the mortgage properties or the Collateral as as the warranty of loan. The Collateral helps mitigate the loss from non-repayment loans. Thus, banks concern on the quality of property’s location, such as location and type of properties/assets. Besides, since the mortgaged properties are usually houses or land parcels, the loan assessors have to consider on the liquidity or ability to sell those foreclosures [7]. Typically, the Collateral factor enhances the quality of Character and Capacity in the loan approval process [10].

5) Condition

As seen in Table 4, the interviewees normally consider the economic situation at the time of loan application. The Bank of Thailand’s rules and regulations towards housing loan and each bank’s lending policy are the essential criteria to take into account in the Condition factor. The RCA add the factors concerning current political situation and government policies towards housing, while MS also look at the condition in the borrower’s organisation he or she is working with. It is also found that most related factors in this Condition are counted as external factor, or systematic risks factors, which are unpredictable or uncontrollable [14]. [1].

6) Country

As earlier mentioned in the previous section, this factor is the least significant amongst the others, and RCA do not even consider this Country factor into the housing loan approving process. All groups of interviewees state that it is difficult to trace the income stream and status of the borrower in the country of origin. Therefore, there are several external risks related to Country factor such as currency exchange rate, economic situation in the country of origin. Nonetheless, it is important to thoroughly analyses when assessing the housing loan to foreigners [15].

V. CONCLUSIONS AND RECOMMENDATIONS

This paper reveals that the selected 5 Thai commercial banks all concern on the default of housing loans, and each bank has its own techniques to analyse and assess the credit risk of the borrowers. The said techniques are typically established by the assessor’s individual perspective and experiences, by the supervisions, or even by the borrowers’ records.

However, these techniques may not suit with the current situation of housing loan approving process, whether in conditional or policy terms. In this regard, default in housing loan may occur by several reasons, such as market factors, business management etc., which in turn, would devalue the banks’ liquidity, reputation and essentially the bank’s capital. This paper also states that Thai commercial banks must concentrate on the importance of credit risk management processes (identification, assessment, treatment and monitoring/controlling), before making decision toward housing loan approval.

A comprehensive credit risk assessment technique has been developed in this paper, it indicates that 6Cs criteria shall be extended while considering the borrower’s potential to repay loan. The priority of 6Cs is ranked as Character, Capacity, Collateral, Capital, Condition and Country, respectively, and the sub-criteria that shall be included in 6Cs are also described in second phase results. To assess the borrower’s credit risks effectively, the authors recommend that Thai commercial banks shall apply other tools/techniques such as Credit Scoring, Know Your Customer: KYC, or Customer Due Diligence : CDD, together with 6Cs, these will help in classifying the borrower’s potential and likelihood to default.

In addition, the banks shall provide a comprehensive and continuously trainings for the decision makers, risk assessors and relevant staff in order to update the current economic/political situation, as well as to acknowledge all new conditions issued by banks or other regulators.

A. Limitations and Future Research

This study only covers on 5 largest commercial banks, which have the highest amount of NPL. We conducted the interviews with 3 departments, who involved with the housing loan approving operational, they consist of Mortgage Sales, Retail Credit Analyst, and Credit Risk Analyst, respectively. It is recommend studying on the decision makers in approving loans, such as credit executives, customs official credit, or assistant director of finance. Moreover, some personal or important information cannot be revealed, due to the business confidentiality of those banks. The information gathered from interviews are derived by the interviewees’ individual opinions, do not relate to the overall lending processes of banks.
Participants in this study for providing the valuable time and understandable knowledge, particularly Dr. Katkate Bunnag for his recommendations towards this work. This paper is supported by Innovative Real Estate Development Department, Faculty of Architecture and Planning, Thammasat University, Thailand.

REFERENCES

VI. Exhibit 1

TABLE IV. 6CS CONSIDERATIONS

<table>
<thead>
<tr>
<th>6Cs’ Credit</th>
<th>Risk analysis (Risk considerations)</th>
<th>Common Factors</th>
<th>Different Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortgage Sales (MS)</td>
<td>Retail Credit Analysis (RCA)</td>
<td>Credit Risk Analyst (CRA)</td>
<td></td>
</tr>
<tr>
<td>Character</td>
<td>Repayment records</td>
<td>Court prosecution records</td>
<td>Court prosecution records</td>
</tr>
<tr>
<td>Working experience /position</td>
<td>Borrowers’ financial status</td>
<td>Working experience and position</td>
<td>Age /Educational</td>
</tr>
<tr>
<td>Age /Educational</td>
<td>Age /Educational</td>
<td>Repayment records</td>
<td>Working experience /position</td>
</tr>
<tr>
<td>Capacity</td>
<td>Salary rate</td>
<td>Borrowers’ debt</td>
<td>Borrowers’ debt</td>
</tr>
</tbody>
</table>
### 6Cs’ Credit

#### Risk analysis (Risk considerations)

<table>
<thead>
<tr>
<th>6Cs’ Credit</th>
<th>Mortgage Sales (MS)</th>
<th>Retail Credit Analysis (RCA)</th>
<th>Credit Risk Analyst (CRA)</th>
<th>Common Factors</th>
<th>Different Factors</th>
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<td>Collateral</td>
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<td>Selling liquidity</td>
<td>Selling Liquidity</td>
<td>Utilities/</td>
<td>Facilities</td>
</tr>
<tr>
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<td>Location</td>
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</tr>
<tr>
<td>Properties/assets type</td>
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<td>Properties /assets type</td>
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<tr>
<td>Conditions</td>
<td>Current economic situation (while borrowing)</td>
<td>Bank of Thailand regulations towards housing loans</td>
<td>Bank of Thailand regulations towards housing loans</td>
<td>Current economic situation</td>
<td>Borrower’s personal profiles (organisation)</td>
</tr>
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<td>Current economic situation</td>
<td>Bank of Thailand regulations towards housing loans</td>
<td>Government policies towards housing</td>
<td></td>
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<tr>
<td>Country</td>
<td>Tax Payment records</td>
<td>Tax Payment records</td>
<td>Actually consider on capital, collateral, and condition of each borrower</td>
<td>Tax Payment records</td>
<td>Currency exchange rate</td>
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<td>Guarantor</td>
<td>The borrower’s country economic situation</td>
<td>Actually consider on capital, collateral, and condition of each borrower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Borrowers’ debt**: Salary rate
- **Position**: Stability of income
- **Type of business / revenue / selling amount**: Tax payment records
- **Working skills**: Risky career / business
- **Capital**: Bank saving accounts
- **Saving behaviours**: Bank saving accounts
- **Burden free assets**: Working capital
- **Capital shares**: Working capital