# Quinte Financial Technologies | FinTech Solutions

**Assignment on**

**CREDIT SCORING MODELS**

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# Credit Scoring Models

Credit scoring is a method used by lenders to evaluate the creditworthiness of a borrower. It involves assigning a numerical value (credit score) to a potential borrower based on their credit history, current financial situation, and other factors. This score helps lenders assess the risk of lending money to an individual or business.

**Key components and concepts:**

1. **Credit History**: This includes information on past and current credit accounts, payment history, and the length of credit history. Consistent on-time payments can positively impact the score, while missed or late payments can lower it.
2. **Credit Utilization**: This is the ratio of current credit card balances to credit limits. Lower utilization rates generally positively impact credit scores.
3. **Types of Credit**: Having a mix of different types of credit (e.g., credit cards, mortgages, auto loans) can positively affect the score.
4. **Recent Credit Inquiries**: Each time a lender requests a credit report for a loan application, it is recorded as a hard inquiry. Multiple hard inquiries in a short period can negatively impact the score.
5. **Public Records and Collections**: Records such as bankruptcies, tax liens, and accounts in collections can significantly lower a credit score.

**Usage**

1. **Lending Decisions**:
   * **Mortgage Loans**: Lenders use credit scores to determine eligibility for home loans, interest rates, and loan terms.
   * **Credit Cards**: Credit scores influence approval, credit limits, and interest rates for credit card applications.
   * **Auto Loans**: Auto lenders assess credit scores to set loan terms and interest rates.
   * **Personal Loans**: Lenders use credit scores to evaluate the risk of personal loan applicants.
2. **Insurance**: Some insurers use credit scores to set premiums for auto and homeowners insurance policies, as there is a correlation between credit scores and the likelihood of filing claims.
3. **Employment**: In certain industries, employers may review credit scores as part of the hiring process, particularly for positions that involve financial responsibility.
4. **Housing**: Landlords often check credit scores as part of the tenant screening process to assess the likelihood of timely rent payments.

**Advantages and Disadvantages:**

**Pros:**

1. **Standardization and Objectivity**: Credit scoring models provide a standardized and objective method for evaluating credit risk, reducing biases in lending decisions.
2. **Efficiency**: Automated credit scoring allows lenders to process applications quickly, enhancing the efficiency of lending operations.
3. **Risk Management**: By accurately predicting the likelihood of default, credit scoring models help lenders manage risk and reduce the incidence of bad loans.
4. **Access to Credit**: Individuals with good credit scores can access credit more easily and benefit from lower interest rates and better loan terms.
5. **Encourages Responsible Credit Behavior**: Awareness of credit scoring incentivizes consumers to maintain good credit habits, such as making timely payments and managing debt levels.

**Cons:**

1. **Limited Scope**: Credit scores primarily reflect credit-related information and may not capture a borrower’s overall financial situation, such as income or savings.
2. **Potential for Errors**: Credit reports, which form the basis of credit scores, may contain errors or outdated information, potentially harming an individual’s credit score.
3. **Impact of Negative Events**: Negative events, such as a single missed payment or a medical debt, can significantly lower a credit score, even if the overall credit history is strong.
4. **Accessibility Issues**: Some consumers, particularly those with limited or no credit history (credit invisible), may find it challenging to achieve high credit scores, limiting their access to credit.
5. **Variability Among Models**: Different credit scoring models (e.g., FICO vs. VantageScore) may yield different scores for the same individual, leading to inconsistencies in credit evaluations.

**Primary Credit Scoring Models in the U.S.:**

1. **FICO Score:** The FICO Score, developed by the Fair Isaac Corporation, is the most widely used credit scoring model. There are several versions of the FICO Score, and lenders may use different versions depending on the type of credit:

* **FICO Score 8**: The most widely used version, emphasizing the importance of credit utilization and payment history.
* **FICO Score 9**: This version treats medical debt less harshly and ignores paid collections.
* **FICO Auto Scores**: Customized for auto lenders to predict the likelihood of default on auto loans.
* **FICO Bankcard Scores**: Tailored for credit card issuers to assess the risk of credit card defaults.

Factors and Weights for FICO:

* **Payment History (35%)**: Record of on-time payments.
* **Credit Utilization (30%)**: Ratio of used credit to available credit.
* **Credit History (15%)**: Length of credit accounts.
* **Credit Use (10%)**: Variety of credit accounts.
* **New Credit (10%)**: Frequency of recent credit applications.

1. **Vantage Score:** Developed by the three major credit bureaus (Equifax, Experian, and Trans Union), Vantage Score is another widely used credit scoring model. Vantage Score uses similar factors to FICO but with different weighting and methodologies:

* **VantageScore 3.0**: Widely used, with a score range of 300 to 850, similar to FICO.
* **VantageScore 4.0**: Incorporates trended data to provide a more comprehensive view of credit behavior over time.

Factors and Weights:

* **Payment History (40%)**: Timeliness of payments.
* **Age and Type of Credit (21%)**: Mix and length of credit accounts.
* **Credit Utilization (20%)**: Credit used vs. available credit.
* **Total Balances (11%)**: Total debt.
* **Recent Behavior (5%)**: New accounts and inquiries.
* **Available Credit (3%)**: Amount of unused credit.

1. **Other Credit Scoring Models:** In addition to FICO and Vantage Score, there are other credit scoring models tailored to specific needs or developed by individual credit bureaus.

* **Experian PLUS Score:** This consumer credit score, developed by Experian, is typically not used by lenders for making credit decisions. It ranges from 330 to 830 and is primarily designed to help consumers understand their credit standing for educational purposes.
* **Equifax Credit Score:** A proprietary scoring model created by Equifax, this score is based on data from Equifax’s credit reports. While it provides a valuable insight into creditworthiness, it is less widely used than more popular models like FICO or VantageScore.
* **TransUnion CreditVision:** This model utilizes trended credit data to offer a dynamic view of credit behavior over time, focusing on patterns in credit usage, balances, and payments. This approach helps lenders make more informed decisions by revealing trends rather than providing a static snapshot of credit information.

**Key Differences between FICO and Vantage Score:**

* **Score Range**: Both FICO and Vantage Score generally use a range of 300 to 850.
* **Credit Utilization**: FICO typically emphasizes the importance of credit utilization more than Vantage Score.
* **Recent Credit Behavior**: Vantage Score can incorporate data from a shorter credit history (e.g., as little as one month of history) and can provide a score for individuals with limited credit histories.
* **Trended Data**: Vantage Score 4.0 uses trended data to analyze how consumers manage their credit over time, while traditional FICO scores do not.

**How Scores Are Used:**

* **Lending Decisions**: Both FICO and Vantage Score are used by lenders to evaluate credit card applications, auto loans, mortgages, and personal loans.
* **Interest Rates and Terms**: Higher scores generally qualify borrowers for better interest rates and terms.
* **Insurance and Employment**: Some insurers and employers may use credit scores as part of their decision-making process.

**Score Distribution**:

* The average FICO score in the U.S. as of October 2023 was 717, with approximately 48% of the population scoring at or above 750​.
* The average VantageScore also varies by state, with states like Minnesota having an average FICO score of 742, while Mississippi had the lowest average score at 680​​.

**Usage Statistics:**

1. FICO scores are used in about 90% of lending decisions in the U.S. Across various types of credit decisions, including mortgages, credit cards, and auto loans, FICO scores remain the dominant choice.
2. VantageScore, which has been commercially available since 2006, saw a substantial increase in usage, with a 42% rise to 27 billion scores in 2023.

**Integration in Lending Processes:**

1. **Loan Origination**:

* 95% of banks use credit scores as a primary factor in loan approval.
* 70% have automated decision-making for scores above certain thresholds.

1. **Risk-Based Pricing**:

* 80% of banks use credit scores to determine interest rates.
* On average, a 100-point score difference can result in a 2-3% APR difference.

1. **Credit Limit Determination**:

* 75% of credit card issuers use scores to set initial credit limits.
* 60% use scores for periodic credit line increases.

1. **Ongoing Account Management**:

* 65% of banks use regular score updates for account monitoring.
* 50% use score changes to trigger account reviews.

**Impact on Lending Decisions:**

Banks using advanced credit scoring models report:

* 20% reduction in default rates
* 15% increase in approval rates for traditionally underserved populations
* 25% faster loan processing times

**Regulatory Considerations:**

* All banks must comply with the Fair Credit Reporting Act (FCRA) and Equal Credit Opportunity Act (ECOA).
* 100% of banks using custom models undergo regular fair lending audits.
* 80% of banks using alternative data have implemented additional compliance measures.

**Future Trends:**

1. **AI and Machine Learning**:
   * 70% of large banks plan to increase AI integration in credit scoring by 2025.
   * Expected to improve accuracy by 10-15%.
2. **Real-time Scoring**: 50% of banks aim to implement real-time credit score updates by 2026.
3. **Open Banking Data**: 60% of banks express interest in incorporating open banking data into credit models.

Thank You