The Forge Goldman Sachs Risk

**Task 1: An introduction to risk**

# What is risk?

Before diving into the world of risk assessment, it's essential to understand the foundation on which this work is built.

Risk management is the cornerstone of economic resilience and strategic decision-making. It’s not just about identifying potential threats; it’s about using analytical tools to quantify and mitigate those risks to safeguard investments and ensure sustainable growth. Our analysts use their expertise in finance, mathematics, and technology to evaluate and manage the risks associated with financial markets.

Risk management requires a diverse set of skills. It involves creating models to predict and assess different financial risks, such as credit risk, market risk, and operational risk. Risk analysts design strategies to minimize the impact of these risks on investment portfolios and ensure regulatory compliance. This field demands a deep understanding of financial instruments, strong analytical abilities, and a proactive approach to problem-solving.

Managing risk is about navigating uncertainty. Financial markets are inherently unpredictable, but with the right methodologies, risk analysts strive to bring clarity to this uncertainty. They analyze market trends, assess the impact of economic factors, and use sophisticated models to predict potential risks. This understanding is essential for making educated investment decisions and protecting assets.

Risk management is a dynamic and challenging field that integrates finance, mathematics, and technology. It offers an exciting opportunity to apply theoretical knowledge to practical, real-world financial problems, ensuring that financial institutions such as Goldman Sachs can thrive in an ever-changing market landscape.

# Risk at Goldman Sachs

At Goldman Sachs, the Risk division develops comprehensive processes to monitor, assess, and manage the risk of expected and unexpected events that may have an adverse impact on the firm. Risk teams play a critical function for the firm, driving how the firm manages risk. Risk professionals execute critical day-to-day risk management activities, lead projects, and contribute to the ongoing advancement of a robust risk management program. Effective coordination with executive management, business units, control departments and technology is critical for success.

We are at the forefront of the most recent engineering solutions, including cloud computing and big data, to better manage the firm's computing costs, given increasing demands related to asset pricing and scenario generation.

Risk teams:

Credit risk: assesses client creditworthiness  
Enterprise risk management: focuses on minimizing risks on capital and earnings  
Liquidity risk: oversees liquidity risk management  
Market risk: manages risks due to market condition changes  
Model risk management: ensures controls around model development and usage  
Operational risk: concentrates on risk assessment frameworks related to systems, people, and processes.   
  
This division plays a crucial role in guiding the firm’s risk-taking and management activities, using advanced engineering solutions like cloud computing and big data for efficient risk management.

## Here are some resources to help you

[**Risk at Goldman Sachs**](https://www.goldmansachs.com/careers/our-firm/risk/)

[**Click to view website →**](https://www.goldmansachs.com/careers/our-firm/risk/)

# The different types of risk

As we delve into the diverse world of risk, it's crucial to understand how these concepts mirror challenges you encounter in everyday life.

Each type has a unique impact in the financial realm, and surprisingly, parallels can be drawn to the daily experiences of a college student. By relating these complex financial concepts to more familiar scenarios, you'll see how risk is everywhere and how you can apply your daily encounters to the world of risk at Goldman Sachs.

Let's look at a few examples:  
  
Market risk: Similar to how the entire stock market can fluctuate, your academic performance can be impacted by broader factors such as changes in the educational system or economic conditions affecting your ability to study (e.g., needing to work more hours).  
Credit risk: Just like lending money with the risk of not being repaid, you face credit risk when you lend notes or study materials to peers without assurance of getting equivalent help in return.  
Liquidity risk: This is akin to trying to sell a concert ticket at the last minute but being unable to find a buyer, potentially leading to a financial loss.  
Operational risk: In your life, this could be related to the risk of losing important work due to a computer crash or misplacing critical study materials.  
Model risk: This is similar to relying on a study plan or method that might not be effective, leading to suboptimal academic performance.

The types of risks assessed (Market, Credit, Liquidity, Operational, and Model Risk) are not just confined to the world of finance; they resonate with the types of problems you encounter daily. This connection highlights the universality of risk assessment and management. Whether it's navigating financial markets or making everyday decisions as a college student, the principles of identifying, analyzing, and mitigating risks remain constant. Understanding these concepts in the context of daily life not only demystifies what risk analysts do but also empowers you to make more informed decisions in various aspects of your life.

# Risk management and mitigation

At Goldman Sachs, risk management is a sophisticated and vital process. It encompasses identifying, analyzing, and proactively addressing financial risks to safeguard assets and maintain market stability. Goldman Sachs employs advanced strategies such as portfolio diversification, hedging techniques, and rigorous monitoring systems. These measures are crucial in making well-calculated financial decisions, ensuring regulatory compliance, and upholding the firm's reputation for financial acumen.

Risk management and mitigation in finance are about controlling potential losses in investments and financial operations. This field is deep and multifaceted, encompassing several critical steps:

1. Identification and analysis: Recognizing and understanding the types of risks (e.g., market, credit, liquidity) and their potential impact on investments.
2. Strategic planning: Developing strategies to mitigate these risks. This could involve diversifying investments to spread risk, using derivatives for hedging, or setting stop-loss orders to limit potential losses.
3. Implementation and monitoring: Actively applying these strategies and continuously monitoring their effectiveness in the dynamic financial market.

In relating financial risk management steps to your life as a student:

1. Identification and analysis: Just like recognizing market or credit risks, you can identify potential risks in your academic and personal choices, such as enrolling in a challenging course or overcommitting to extracurricular activities.
2. Strategic planning: Similar to how a financial expert diversifies investments, you can create a balanced academic and social schedule. This might mean mixing tough subjects with ones you find easier or balancing your study and leisure time, akin to financial hedging.
3. Implementation and monitoring: This involves applying your strategic plan to your daily life and consistently assessing its effectiveness. You might need to adjust your study habits or commitments, much like a financial expert would adapt to changing market conditions.

# Managing risk in your daily life

Let's bring it all together in this practical task. You'll evaluate risks in three relatable scenarios, mirroring the risk assessment process. This exercise will help you apply the concepts of risk management to everyday situations, enhancing your critical thinking skills. By the end of this task, you'll have a clear idea of how to identify, categorize, and mitigate risks in both your personal life and a financial context. Let's see how these principles play out in real-life scenarios!

Using the text submission box below, list all of the risks you can think of associated with the three scenarios provided. Consider each situation carefully and identify any potential challenges or issues you might encounter. Your goal is to be thorough and thoughtful in recognizing the risks in these everyday contexts.

Questions:

Getting to a 9:00 a.m. exam on Monday

* Consider all the factors that could impact your timely arrival at an early morning exam.

Organizing a weekend road trip with friends

* Think about the challenges and risks involved in planning a weekend getaway with a group of friends.

Planning an on-campus event for an extracurricular organization

* Reflect on the potential risks and challenges you might face while organizing an event on campus for a club or organization you're involved in.

### **Answer:**

### **Managing Risk in Daily Life: Risk Assessment for Three Scenarios**

#### **1. Getting to a 9:00 a.m. Exam on Monday**

* **Transportation Issues:** Traffic delays, car breakdowns, missed bus/train, ride cancellations (if using a rideshare).
* **Time Management:** Oversleeping, misjudging commute time, long lines at public transport stations.
* **Weather Conditions:** Heavy rain, snow, or fog delaying travel.
* **Health Issues:** Waking up sick, sudden illness, or fatigue affecting performance.
* **Technology Problems:** Alarm clock failure, phone battery dying overnight.
* **Unexpected Emergencies:** Family emergencies, personal accidents, or unexpected obligations.
* **Mental Readiness:** Anxiety or stress leading to poor sleep, impacting performance.

**Mitigation Strategies:**

* Set multiple alarms, have a backup transportation plan, prepare everything the night before, check the weather forecast, and leave early to allow buffer time.

#### **2. Organizing a Weekend Road Trip with Friends**

* **Logistics Challenges:** Difficulty coordinating schedules, booking issues for accommodation or activities.
* **Vehicle Issues:** Car breakdowns, flat tires, running out of fuel, or accidents.
* **Financial Concerns:** Uneven cost distribution, unexpected expenses, or lost funds.
* **Safety Risks:** Driving fatigue, reckless driving, getting lost, encountering dangerous areas.
* **Weather Conditions:** Storms, floods, extreme heat affecting travel plans.
* **Health and Well-being:** Food allergies, car sickness, injuries during activities.
* **Group Conflicts:** Disagreements over itinerary, spending, or responsibilities.

**Mitigation Strategies:**

* Plan in advance, create a budget, ensure the vehicle is in good condition, assign a designated driver, check weather conditions, and establish emergency contacts.

#### **3. Planning an On-Campus Event for an Extracurricular Organization**

* **Logistics & Venue Issues:** Availability of the venue, booking conflicts, lack of proper equipment.
* **Attendance & Engagement Risks:** Low turnout, poor marketing, lack of interest.
* **Budget Constraints:** Insufficient funding, overspending, unexpected costs.
* **Technical Difficulties:** Equipment failure (microphones, projectors), Wi-Fi issues, power outages.
* **Safety & Compliance:** Fire hazards, overcrowding, injuries, security concerns.
* **Team Coordination Issues:** Miscommunication, last-minute cancellations, unprepared volunteers.
* **External Factors:** Weather issues (for outdoor events), university restrictions or policy changes.

**Mitigation Strategies:**

* Have a clear plan with contingencies, secure necessary approvals, promote effectively, test equipment beforehand, assign clear roles to team members, and ensure safety measures are in place.

# Example answer

Great work! Take a look at the risks identified. Keep in mind this is by no means exhaustive, and you may have different answers.

| **9:00 a.m. Monday morning exam** | **Weekend road trip** | **On-campus event** |
| --- | --- | --- |
| A transit strike affecting public transportation. | A friend not paying their share of the trip expenses. | Failure of audiovisual equipment. |
| A friend forgetting to bring their extra calculator to the exam for you. | Car breakdown. | An overlapping major campus event reducing attendance. |
| Not having enough balance on a public transport card and no immediate means to top it up. | Overestimating the car's fuel efficiency. | A sponsor backing out at the last minute. |
| Misplacing the exam hall ticket. | Fuel prices suddenly increased. | Unexpected costs exceeding the budget. |
| Misinterpreting the exam timetable. | Running out of money during the trip. | Overestimating attendee numbers based on interest shown on social media. |

In the next step, you'll analyze and match these risks to their associated types.

**Task 2: Evaluating client profiles and real estate investments**

# Let's get started

Building on your newfound understanding of everyday risks, you're now stepping into the world of risk management here at Goldman Sachs. You'll apply those same principles to assess risk in a different context — one where financial stakes are high and decisions are data-driven. This task will challenge you to think like a Goldman Sachs analyst, making strategic choices for clients and investments.

At Goldman Sachs, our exposure to risk comes from a variety of counterparties, including corporations, institutions, and individuals engaged in banking and trading activities within our Global Banking and Markets (GBM) and Asset and Wealth Management (AWM) divisions. As a risk analyst, your role involves evaluating the credit quality of these diverse clients to ensure informed and strategic decision-making. While assessing an individual's personal finances can be illustrative, it's crucial to understand that our primary focus is on the broader scope of corporate and institutional clients.

Your task is to assess the risk profiles of potential clients and the viability of a real estate investment. This is your opportunity to apply the principles of risk assessment you've learned to real-world financial situations. Approach each profile and investment critically, considering the potential risks and their impacts. Your analysis will pave the way for informed decision-making.

Ready to begin? Let's dive into the details and start our assessment.

# Individual credit risk

Credit risk assessment is a vital component in the financial sector, particularly at Goldman Sachs. It involves evaluating the likelihood of a borrower defaulting on a loan. This assessment is based on various factors, including credit history, repayment capacity, financial stability, and income sources. Goldman Sachs uses sophisticated models and analytical tools to assess credit risk, ensuring sound investment decisions and minimizing potential losses.

This task simulates the process of credit risk assessment in a simplified form. While Goldman Sachs uses complex algorithms and detailed analyses, this activity provides a foundational understanding by using a basic risk calculator. You'll assess the credit risk of different fictional personas, mirroring the kind of work done in real-world finance, albeit in a more accessible way.

Instructions:

* Review each fictional persona's financial profile.
* Download the risk calculator and input their details.
* Note the risk level assigned to each persona.

As you use the risk calculator, play with the values for each persona. Adjusting different inputs, such as changes in credit score, income, or debt amounts, will show you how these factors affect someone's risk level.

Based on your findings, you will answer a series of short-response and multiple-choice questions to reinforce your understanding of assessing credit risk, allowing you to apply and reflect on the knowledge you've gained.

| **Risk Attribute** | **Persona 1** | **Persona 2** | **Persona 3** | **Persona 4** |
| --- | --- | --- | --- | --- |
| Annual Income | $280,000 | $180,000 | $100,000 | $150,00 |
| Credit Score | 760 | 700 | 660 | 720 |
| Debt | $150,000 | $100,000 | $90,000 | $200,000 |
| Savings | $450,000 | $120,000 | $20,000 | $80,000 |
| Late Payments | 0 | 1 | 2 | 1 |
| Notes | A seasoned entrepreneur is looking to diversify their investment portfolio. They're interested in sustainable and ethical investment opportunities and want advice on balancing their portfolio for long-term growth. Their recent venture success has boosted their savings, and they're seeking Goldman Sachs' expertise to manage their increased wealth. | A mid-career professional is planning for a major life transition. They're considering buying a new home and need advice on mortgage options and managing existing debts. They're also looking into setting up a college fund for their children and are seeking Goldman Sachs' services for financial planning and debt management. | A high-earning IT consultant has faced some financial hiccups and is looking to consolidate their debts. They're also interested in exploring investment strategies to grow their savings and recover from recent financial missteps. They're approaching Goldman Sachs for their expertise in debt consolidation and for guidance on making smarter investment choices. | A successful small business owner with a fluctuating income due to the seasonal nature of their business. They have significant debt from a recent expansion but have maintained a good credit score. They are looking for advice on managing cash flow, reducing debt, and planning for future business investments. |

*Note: The risk calculations you're working with for this activity are simplified and meant to provide a glimpse into the type of analytical work done by analysts at Goldman Sachs. They do not precisely reflect the complex and multifaceted methods Goldman Sachs uses in actual risk assessments.*

## Here are some resources to help you

**[Risk Calculator](https://cdn.theforage.com/vinternships/companyassets/MBA4MnZTNFEoJZGnk/prcj7XmSCJazax8LQ/1716992093939/Risk%20Calculator.xlsx)**

[**Click to download file →**](https://cdn.theforage.com/vinternships/companyassets/MBA4MnZTNFEoJZGnk/prcj7XmSCJazax8LQ/1716992093939/Risk%20Calculator.xlsx)

### **Steps to Assess Credit Risk:**

1. **Download the Risk Calculator** – Open the file and check the input fields.
2. **Input Each Persona's Financial Data** – Enter annual income, credit score, debt, savings, and late payments.
3. **Adjust Key Factors** – Modify credit score, income, debt, and savings to see how risk levels change.
4. **Analyze the Output** – Note the risk classification (e.g., low, medium, or high risk).
5. **Reflect on Insights** – Consider how each factor affects risk levels.

### **Predicted Risk Levels (Based on Given Data)**

While the actual calculator will give precise results, here's a general expectation:

1. **Persona 1 (Entrepreneur)** – **Low Risk**
   * High income ($280K) and savings ($450K), excellent credit score (760), and no late payments.
   * Despite having $150K in debt, their financial stability suggests strong repayment ability.
2. **Persona 2 (Mid-Career Professional)** – **Medium-Low Risk**
   * Good income ($180K) and moderate debt ($100K), fair savings ($120K).
   * Credit score (700) is decent, with one late payment.
   * Likely a stable borrower but could improve debt management.
3. **Persona 3 (IT Consultant)** – **Medium-High Risk**
   * Lower credit score (660), low savings ($20K), and two late payments indicate financial instability.
   * Though income is $100K, debt is high ($90K), making them a higher-risk borrower.
   * Debt consolidation might help lower risk.
4. **Persona 4 (Small Business Owner)** – **Medium Risk**
   * Strong credit score (720) but significant debt ($200K) from business expansion.
   * Fluctuating income poses a risk despite decent savings ($80K).
   * Managing cash flow effectively will be key to lowering their risk.

Question 1 of 6

**Persona 1 has access to a $10,000 personal credit card from a consumer bank that has historically not been used. How could this affect their credit risk profile?**

1. No change, the credit card is unused and the person has no debt
2. Increase as the person has an ability to easily add up to $10,000 of debt
3. Increase as the person requires $10,000 of additional liquidity
4. Decrease due to added financial flexibility

Question 2 of 6

**Persona 2 is considering a new home mortgage without having paid off their existing debts. How would this affect their risk assessment?**

1. Decrease risk by diversifying assets
2. Decrease risk due to increased property value
3. No change, as property is a tangible asset
4. Increase risk due to higher debt levels

Question 3 of 6

**If Persona 3 successfully consolidates their debt, how is their credit risk profile likely to change?**

1. Decrease due to easier debt management
2. Increase due to a single larger debt
3. Stay the same, as total debt remains unchanged
4. Increase, as it reflects financial instability

Question 4 of 6

**Persona 1 plans to liquidate some assets to fund a start-up. What impact might this have on their credit risk?**

1. Decrease, as a start-up can increase income
2. Increase due to the reduction in liquid assets
3. Stay the same, as income remains constant
4. Decrease due to potential business success

Question 5 of 6

**Persona 2 is well established in their profession and has an agreement with their employer to work at their current salary for the next three years. How could this affect their credit risk profile?**

1. No change, the person will be making the same amount of money for the next three years
2. Increase, the person is limiting their earning potential for the next three years
3. Decrease, there is contractual support that the person will be employed at their current salary for the next three years
4. Increase, the persona’s profession may provide limited job security

Question 6 of 6

**Persona 4 has a $50,000 business loan from a local bank, which they have been repaying on schedule for the past two years. How could this affect their credit risk profile?**

1. No change, as they are consistently repaying the loan and it is a typical business expense
2. Increase, because having a business loan increases their overall debt load
3. Decrease, because consistent repayment history indicates financial responsibility
4. Increase, because the loan could lead to cash flow issues for their seasonal business

Q1: Option 4. A large historical availability on a credit card implies a large liquidity position such that the person will be able to cover any unforeseen liabilities or near term debt maturities

Q2: Option 4. Adding a mortgage increases debt, which can elevate a profile.

Q3: Option 1. Consolidation simplifies debt management, potentially lowering the risk profile.

Q4: Option 2. Liquidating assets reduces an immediate financial cushion, potentially increasing risk.

Q5: Option 3. Contractual support that the person will be employed at their current salary provides confidence for the near future that the person will remain employed, continue earning their current salary despite macroeconomic conditions, and earn a wage that allows them to service debt obligations

Q6: Option 3. Consistently repaying the business loan on schedule demonstrates financial discipline and reliability, which can positively impact Persona 4's credit risk profile.

# A quantitative approach to real estate risk analysis

Having delved into individual risk assessments, we now transition to a real-world scenario a risk associate might face, focusing on real estate investment. You'll apply these skills to analyze risks associated with property management and market competition.

In your role at Goldman Sachs, you're stepping into the flourishing Florida real estate market. Here, your client's considerable apartment complex investment is subject to the dynamics of a thriving but complex market. Here's what you need to know about the market:

* High demand for rentals due to Florida's population growth and tourism.
* Variable property tax rates that could influence net revenue.
* Risk of hurricane damage, which is a serious consideration for property integrity and insurance premiums.
* Seasonal swings in rental demand impact occupancy rates.
* The emergence of new, modern complexes could threaten to draw current and potential tenants away, impacting long-term occupancy rates.

Your objective is to assess the likelihood of various risk scenarios impacting the property and decide on the most suitable mitigation strategies. To begin, download the Risk Mitigation Workbook provided.

In this task, you'll:

* Input estimated risk probabilities based on current market data and trends.
* Observe how these inputs categorize risk levels and understand the implications.
* Select from a set of mitigation strategies.
* Analyze the generated outcomes to critically evaluate each selected strategy's potential effectiveness.

The appropriate mitigation strategy changes based on how you've assessed the risk level. Try different risk levels to understand how your mitigation approach could, and should, shift based on your assessment.

This simulation offers you a real-world glimpse into the value of quantitative assessment in making informed decisions. Let's get started!

## Here are some resources to help you

**[Risk Mitigation Workbook](https://cdn.theforage.com/vinternships/companyassets/MBA4MnZTNFEoJZGnk/prcj7XmSCJazax8LQ/1705026152730/Risk%20Mitigation%20Workbook.xlsx)**

[**Click to download file →**](https://cdn.theforage.com/vinternships/companyassets/MBA4MnZTNFEoJZGnk/prcj7XmSCJazax8LQ/1705026152730/Risk%20Mitigation%20Workbook.xlsx)