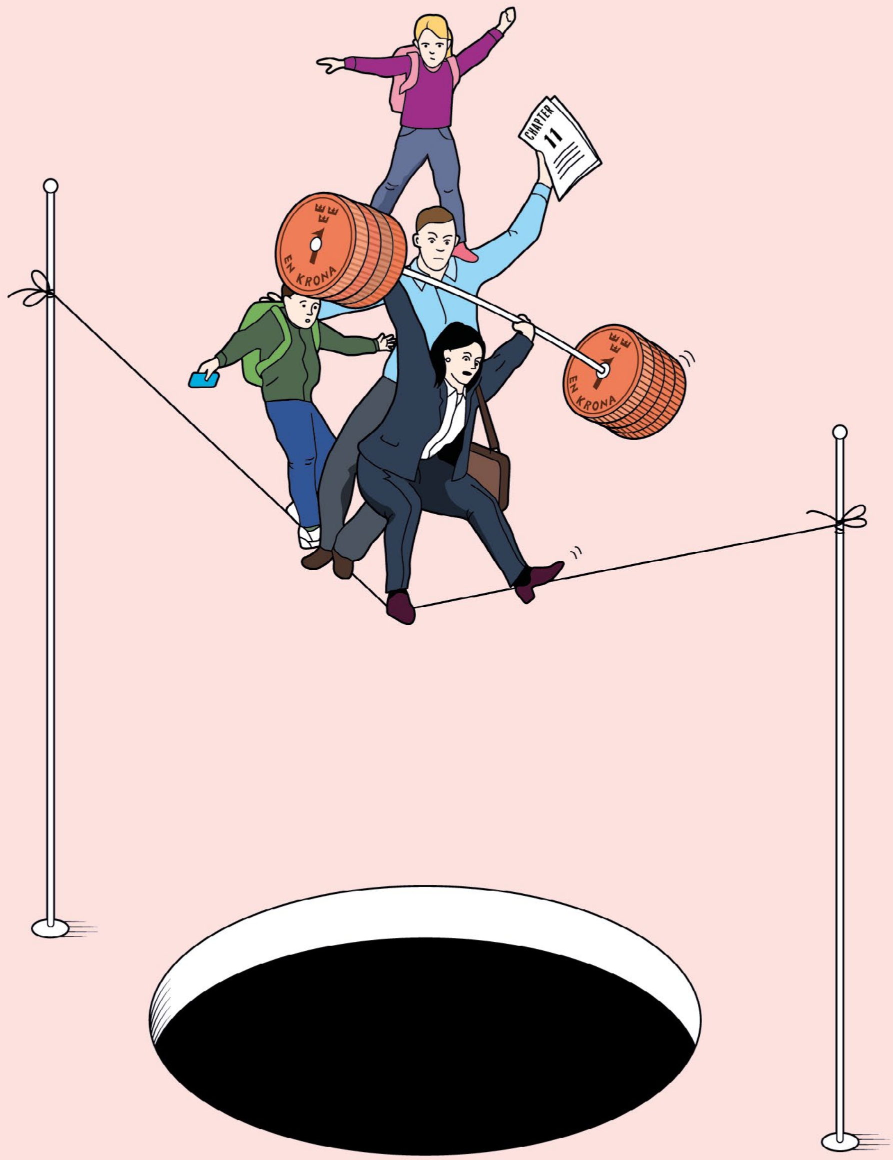
SWEDISH HOUSE OF FINANCE | STOCKHOLM SCHOOL OF ECONOMICS

Annual Report 2024

BALANCING DEBT



Experts Urge Debt Reform as Over-Indebtedness in Sweden Rises

Rethinking Sweden's Mortgage Rules

Can Job Insecurity Push Employees Towards Entrepreneurship?

Startups Have a Lesson to Learn from Northvolt

Banking Without Branches: The Hidden Costs of Digitalization

Passive Investing is Reshaping the Stock Market

Creating impact through research

Words from the Director

How important is finance?

The financial sector is large in economic terms. In the European Union, around 2.2 million people are employed in banks alone. Bank assets exceed 300% of GDP in eight European countries (including Sweden, 312%). Private assets under management globally are over $13 trillion by one estimate. On top of that, there is the stock market.

Although impressive, these numbers understate the significant role the sector plays as a provider of financial services to the rest of the economy. Financing of firms and households is key to investments in real estate, machinery, intellectual property, AI, and everything else that a modern economy needs to develop for the future. If the financial system works well, the implications for economic growth are positive and strong. The sector is also where many technological innovations are brought to bear—for example, retail banking is in the middle of a historic shift toward digital distribution.

Importantly, financial crises disrupt the function of the financial system. A financial crisis slows down or stops new lending, public equity issuance, mergers and acquisitions, deal making, and thereby hurts growth and productivity. The last time this happened globally was in 2008-2009, and we lived with the aftermath of that crisis for a long time. Whether a full-blown crisis or not, there is certainly some financial stress in our future. The Swedish economy is probably in recession (GDP growth in the third quarter was 0.3%) and the European economy is growing feebly. On the other hand, the U.S. stock market is at an all-time high, so perhaps growth is about to pick up. If it does, we expect deal making and public listing to return.

The significance of the financial sector has not gone unnoticed by students. I hear from the Stockholm School of Economics, where the Swedish House of Finance (SHoF) is hosted, as well as at other academic partners, that demand for finance courses is high. According to OECD data, 25% of higher education is in business fields (at 15%, Sweden has the second lowest share of business students out of 36 countries in the OECD data). Students love to work in the financial sector, and they can do much good by helping the financial system fulfill its vital function. In 2024, SHoF fellows published research on topics related to both the stability of the financial system, on the growing role of institutions in asset management, on the impact that's possible for sustainable investment, and on how insolvency impacts employees. These same topics interest our students, our many partners, and other guests at SHoF events. Read more about it in the next pages!

BO BECKER
Director, Swedish House of Finance

Cevian Capital Professor of Finance and Head of Department of Finance, Stockholm School of Economics

About the Swedish House of Finance

The Swedish House of Finance at the Stockholm School of Economics is Sweden's national research center for financial economics. It hosts internationally distinguished researchers and enables financial research and development of the highest quality.

The Swedish House of Finance (SHoF) provides an independent platform for dialogue, open to everyone with an interest in finance. The center generates daily contact between academia, the public, and the private financial sectors, which in turn leads to new research, new private initiatives, and a basis for better decisions and meaningful regulation of the financial sector. The ultimate goal of the center is to strengthen financial research, create impact through achieving a critical mass of world class researchers, and share positive externalities with the private and public sectors as well as academia in Sweden.

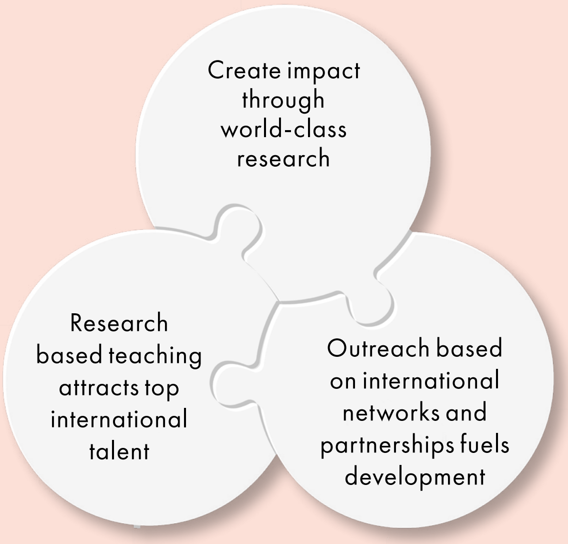
SHoF has succeeded in attracting world class academic researchers, as well as top-tier students. It has built an ecosystem for financial research and development. This provides decision-makers in Sweden with access to the world's collective expertise in finance.

SHoF provides a platform for:

- Creating a physical research infrastructure
- Establishing a national center for financial data
- Launching a doctoral course program in finance available to all doctoral students in Sweden
- Carrying out programs for research interactions: to provide open seminar series, invite guest researchers, and arrange conferences
- Supporting the recruitment of international researchers to Swedish academic institutions. Sharing its research infrastructure with researchers in Sweden
- Obtaining research financing from the Swedish financial industry

A National Mandate

1. **National PhD Program:** Highest standards. Open to all Swedish universities
2. **Data Center**: Both international databases and databases on exclusive Swedish data developed by the in-house data center available to all researchers in Sweden
3. **Research:** Fellowship program, publication incentives, support for travel and recruitment
4. **Infrastructure:** Offices, lectures, conferences, seminars and a researcher visiting program
5. **Outreach:** Seminars, conferences and research communication aimed at both academics and decision makers within the private and public financial sector



In this Issue

In Sweden, unpaid debt increased 17% to 119 billion SEK over the past year.

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Balancing Debt

Four years after the COVID-19 pandemic, countries faced inflation, high interest rates, and job instability. Managing debt became a top priority for policymakers, business leaders, and researchers. The Ministry of Finance appointed a committee with the task of reevaluating mortgage amortization regulations. In November, the committee, chaired by SHoF researcher Peter Englund, presented to the government, proposing several measures aimed at addressing debt-driven risks in the housing market. SHoF also brought together policymakers, researchers, and media to discuss whether Sweden should adopt a more lenient approach to debt relief, exploring the effects of debt forgiveness on well-being and bankruptcy drivers.

Additionally, SHoF hosted a seminar with Harvard's John Campbell, a renowned expert in household finance, to discuss global mortgage trends. In 2024, SHoF researchers also published a study on the economic benefits of homeownership, drawing from a unique experiment in Sweden where renters were offered, then unexpectedly denied, the chance to buy their apartments. The findings provide crucial insights into the economic effects of homeownership, shaping future housing policies.

Experts Urge Debt Reform as Over-Indebtedness in Sweden Rises

The Swedish House of Finance (SHoF) hosted a panel discussion exploring both the economic theories and practical experiences surrounding household debt relief, in Sweden and internationally.

Sweden is grappling with its largest rise in household over-indebtedness since the 1990s, with unpaid debt at Kronofogden (the Swedish Enforcement Authority) jumping 17% to 119 billion SEK over the past year. At a SHoF's conference, policymakers, researchers, and industry leaders discussed whether Sweden's financial system should adopt a more lenient stance on household debt relief.

Tighter Oversight Needed

Johan Almenberg, State Secretary to the Minister for Financial Markets, opened the panel by outlining the regulatory landscape in Sweden. He noted that while the government has implemented a range of reforms, including measures to increase supervision of non-bank consumer credit providers, there is still more to be done.

Seminar "Rethinking Household Debt Relief: Should Swedes Be More Forgiving?" with Neale Mahoney (Stanford University), Lena Petersson (SVT), Johan Almenberg (Finance Ministry), and Fredrik Rosengren (Kronofogden), moderator Marieke Bos (SHoF). September 2024.

"We've seen rapid growth in consumer credit, and the digital financial landscape makes it even easier to market these loans at low costs," he said. "We need to stay ahead by making sure lenders properly assess creditworthiness."

Starting March 1, 2025, Sweden will implement new regulations to curb predatory lending, including a lower interest rate cap, stricter fee limits, reduced costly maturity extensions, and tougher rules on credit marketing to protect consumers from excessive borrowing. "By making these loans more expensive, we hope to curb their use and prevent more people from falling into the debt trap," he said.

The Human Side of Debt

Lena Petersson, author of the book "Skuldsatt", highlighted the personal and societal toll of debt, criticizing predatory lending practices in Sweden.

"Unpaid loans have become a brilliant business model," she said, challenging the misconception that debt stems from reckless spending. Instead, she pointed to unemployment, illness, and divorce as the main causes of over-indebtedness.

Petersson called for a more compassionate debt relief system, arguing that it disproportionately favors lenders, whom she said enjoy "the right to fail," while borrowers face excessive regulations and scrutiny.

"It's time to reconsider the moral implications of this imbalance," she said.

The conference was organized by SHoF researchers Marieke Bos and Paula Roth, together with Lund University's Elin Molin.

The Role of State

Kronofogden's Fredrik Rosengren revealed that the agency is overwhelmed with cases of unpaid debt, many of which are becoming increasingly complex.

"We're seeing more people who are not your typical debtors. They have jobs, they own homes, but they're unable to pay their bills," he explained, attributing much of the rise in debt to the high costs of living, inflation, and increased interest rates.

Rosengren also underscored the need for systemic change, suggesting that stricter regulations on lending practices could ease the burden on Kronofogden.

"The tools we have are very intrusive—we can seize assets, including homes—but these measures should be a last resort," he said. He also warned that rising debt levels could have long-term effects on families and society, stating, "Living in financial distress leaves scars that last a lifetime."

Debt Relief and Systemic Change: Perspective from the U.S.

While there is consensus on the need for reform, the path forward remains complex. Almenberg noted that government efforts focus more on preventing debt than on providing relief for those already struggling and acknowledged that more needs to be done for those in deep financial distress.

Stanford's Neale Mahoney, drawing on the U.S. experience, pointed out that lenient bankruptcy laws can act as a check on the supply of risky credit.

"Helping people get out of debt provides feedback loops that encourage responsible lending," he said, suggesting that Sweden could benefit from a similar approach, especially as digital services make risky lending easier.

Sasha Indarte from Wharton highlighted that many eligible households fail to take advantage of debt relief due to complexity, stigma, and lack of information.

"Households are leaving a lot of money on the table," she said, noting that fears of damaged credit or job prospects often prevent people from seeking

Does Forgiving Debt Automatically Improve Well-Being?

SHoF interviewed Neale Mahoney, Professor in the Department of Economics at Stanford University about his research on the impact of debt relief in financial and mental well-being. He and co-authors studied 83,400 people who had $169 million in medical debt relieved through RIP Medical Debt (now Undue Medical Debt). The study tracked patients for about a year after debt relief, comparing them to those who did not have their debt cleared.

The relief had minimal effects on credit access and financial well-being. Credit scores rose by just 3.6 points on average, with a larger 13.4-point increase for those with only medical debt. Credit limits increased by an average of $342.

"What we found is that the impacts of debt relief are not uniform. They depend upon when the debt relief is provided, to whom it's provided."

—Neale Mahoney, Stanford University

We are grateful to Jan Wallander's and Tom Hedelius' Foundation, Vinnova and Åke Wiberg Foundation for financial support.

What Really Drives Bankruptcy?

Sasha Indarte, Assistant Professor of Finance at The Wharton School of the University of Pennsylvania, was one of the keynote speakers at the conference. In an interview, she discussed her research on the influence of moral hazard and liquidity on household bankruptcies and how these dynamics may shift with the global rise in consumer debt.

Her findings reveal that 83% of bankruptcy filings are driven by liquidity shortfalls, challenging the idea that moral hazard—when people file for bankruptcy for potential wealth gain by reducing their debt—is the primary driver.

“

If we strengthen the social safety net, I would expect us to see fewer bankruptcies, and among the bankruptcies, we would continue to see they're more likely going to be due to this moral hazard, rather than this liquidity or insurance motive. If we weaken our social safety nets, then I would expect the opposite."

—Sasha Indarte, The Wharton School of the University of Pennsylvania

Presentation by Neale Mahoney (Stanford University) at the seminar "Rethinking Household Debt Relief: Should Swedes Be More Forgiving?". September 2024.

help. Her research suggests simplifying debt relief and improving awareness could help more households.

Yale’s Paul Goldsmith-Pinkham added that generous debt relief in the U.S. is critical due to its weaker social safety nets.

“In Europe, stronger social insurance may reduce the need for such relief, as it provides some of the same protections,” he said. ♦

Sweden Rethinks Pension Choices Amid Calls for Simplicity and Safeguards

At a seminar hosted by the Swedish House of Finance titled "Can We Improve the Way People Make Pension Choices?", panelists James Choi (Yale), SHoF researcher Anders Anderson (Stockholm School of Economics), and Anna Pettersson Westerberg (Pensionsmyndigheten) discussed whether individuals are making optimal investment decisions and how research can guide better outcomes.

Complexity and Limited Understanding

"It's difficult to understand pensions at all," said Anna Pettersson Westerberg, Director General of Pensionsmyndigheten. She highlighted a troubling disconnect: while 55% of Swedes claim to understand the pension system, only 30% can answer basic questions when tested.

"The gap between perceived and actual understanding leaves many ill-equipped to make informed decisions," she explained.

Sweden's pension system, introduced in 1999, was designed to give individuals control over their retirement savings. However, this focus on personal agency has exposed significant challenges.

"Pensions are inherently complex," Pettersson Westerberg said. "When you add decisions about funds, fees, and risk, it becomes overwhelming."

Research from SHoF's Anders Anderson reinforced this concern.

"People don't know what they don't know," he said, explaining that overconfidence often results in poor decisions. At the same time, financial disengagement drives many savers into the default AP7 Såfa fund, a safety net for those less active in managing their investments.

Today, nearly half of all savers rely on the default fund. "This raises questions about whether the system's emphasis on freedom aligns with users' capabilities," Anderson noted.

Rethinking the System

James Choi emphasized the importance of tailoring pension contributions and risk-taking to individuals' life stages, aligning with economic theory.

"Younger people should save less and take more risks because their future earnings act as a buffer," he explained, referencing the concept of human capital as a form of implicit bond-like security.

Choi highlighted the misalignment in current policies, which apply flat contribution rates and conservative investment strategies.

"The system doesn't account for the unique financial circumstances of younger savers," he said.

He pointed to the AP7 Såfa fund, which starts with high equity exposure but does not leverage risk to the extent economic models would prescribe for optimal growth early in life.

He also stressed the need for a broader approach to risk management across the entire pension system.

"If we want to increase overall risk exposure, it can't just fall on the premium pension," Choi said. "We need a cohesive strategy that includes occupational pensions as well." ♦

Seminar with Anders Anderson (SHoF/Stockholm School of Economics), James Choi (Yale School of Management), and Anna Pettersson Westerberg (Pensionsmyndigheten), moderated by Annika Sundén. March 2024.

Benefits of Homeownership

A new study looks into a unique experiment in Sweden where renters were offered, then unexpectedly denied, the chance to buy their apartments. It offers a rare, data-driven glimpse into the true economic effects of owning a home, essential for informing future housing policies.

Countries worldwide are addressing housing policy and affordability amid high interest rates and inflation. A study by Swedish House of Finance's researchers Paolo Sodini (Stockholm School of Economics) and Roine Vestman (Stockholm University), together with Ulf von Lilienfeld-Toal (University of Luxembourg) and Stijn Van Nieuwerburgh (Columbia University), reveals new insights into the benefits of homeownership. Overcoming previous research limitations through a Swedish quasi-experiment, the study shows that homeownership boosts consumption, increases mobility, and accelerates wealth.

The Swedish Homeownership Experiment

The study focuses on a unique episode in Stockholm, where a group of renters were initially allowed, but later unexpectedly denied the chance to buy their apartments. This random allocation of purchase opportunities among renters allowed the researchers to isolate the effects of owning a home and analyze the financial outcomes of transitioning from renting to owning.

The robustness of this study stems from its ability to overcome the classic challenge in housing research – the endogeneity issue, where inherent differences between homeowners and renters could skew results.

Utilizing data from administrative registries, the study tracked homeowners' demographics, income, housing, financial wealth, and debt from 1999 to 2007, comparing them with those who continued to rent. The period of study spanned the time before and during the privatizations, and after the program ended.

Key Findings

- Homeownership results in significant wealth gains
- Homeowner consumption increased by 18.5% per year compared to when they were renters
- Homeowners are better able to smooth consumption using debt

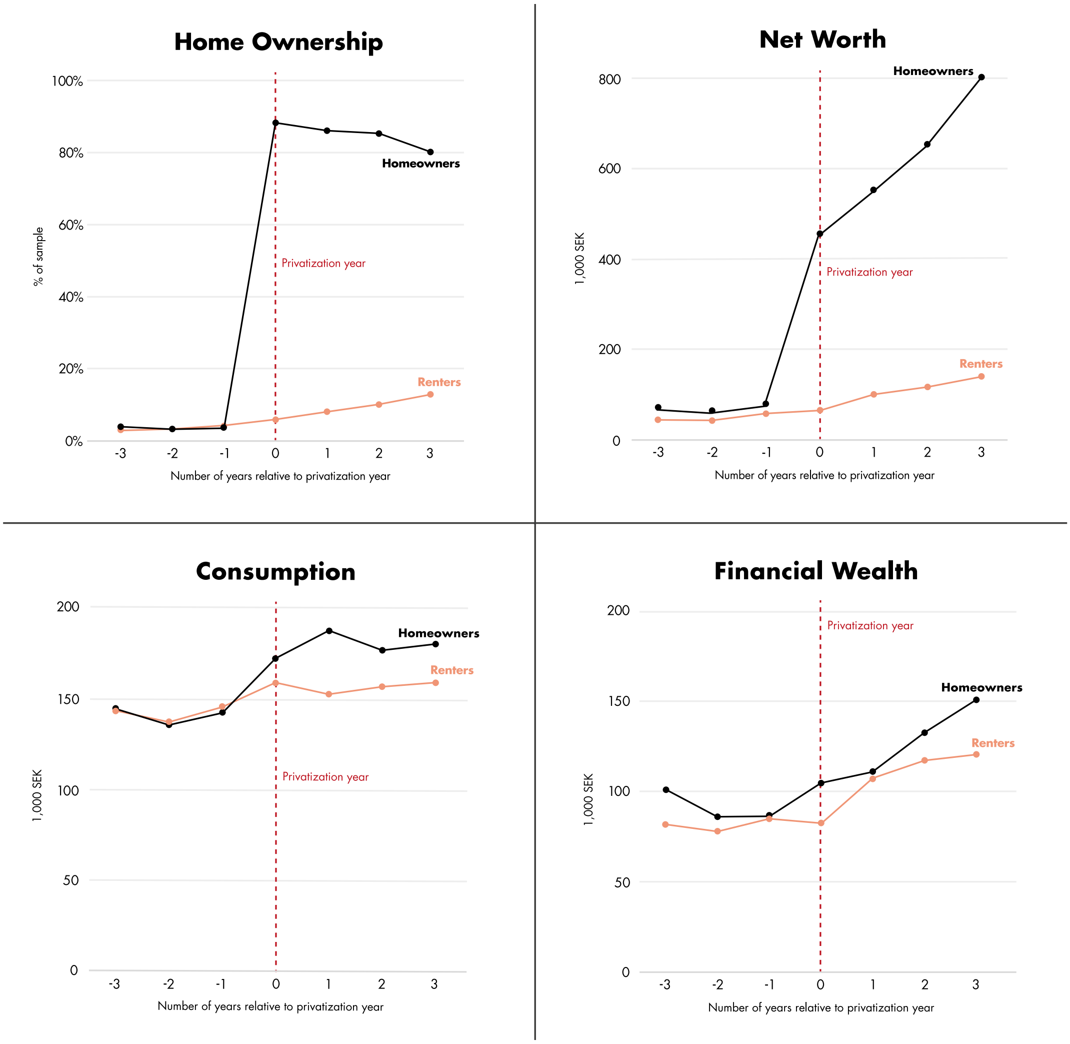
Homeownership Resulted in Wealth Gains

The study found a significant increase in wealth accumulation among new homeowners. Driven largely by the appreciation in house prices, these individuals saw considerable growth in their personal assets, amplified by leveraging their properties. Homeownership not only served as a vehicle for wealth building but also as a means for financial leverage, providing homeowners a substantial advantage over renters.

Consumption Behavior

Households transitioning to homeownership increased their annual consumption by about 30 thousand SEK per year in the four years after they started owning their homes, marking an 18.5% rise compared to their spending habits as renters.

The study found evidence for spending in home improvements, as did previous research, but it also found that home-improvement spending did not account for the bulk of the increase in household spending overall. This boost in consumption and decline in savings in financial assets (aside from



Note: The figure shows average values for four outcome variables around the year of privatization. "Homeowners" refers to the renters that finally were offered to buy their apartments, while "renters" were denied. Financial wealth is the sum of all financial assets outside of the pension system (bank accounts, mutual funds, stocks, etc.). Net worth is the sum of financial and housing wealth minus debt. Consumption is an approximation of the households' spending during the year.
Source: Sodini, Van Nieuwerburgh, Vestman, and von Lilienfeld-Toal. "Identifying the Benefits from Homeownership: A Swedish Experiment." (2023)

the mortgage) underscores the financial confidence and stability that comes with owning a home.

It also found that homeowners were better equipped to manage their consumption in response to income changes, thanks to the ability to borrow against their housing equity.

"Homeowners were able to absorb the negative income shocks and maintain their pre-shock consumption levels by borrowing against their housing equity," Sodini says. "Households that remained renters had to reduce consumption as much as the decline in income."

Improved Mobility

Homeowners are generally thought to be less mobile than renters. The study however found that younger households were more likely to move to neighborhoods with higher property values, facilitated by the capital gains from their initial home purchases.

This trend not only reflects the wealth-building aspect of homeownership but also its impact on urban demographics and neighborhood dynamics.

Riskier Investment Choices

Older homeowners displayed a tendency to allocate a larger portion of their financial assets into riskier investments. This shift in investment behavior among homeowners suggests a broader impact of property ownership on financial decision-making and risk tolerance. ♦

What Are Households' Biggest Mistakes When It Comes to Their Finances?

Harvard economist John Campbell sheds light on how our perceptions of the economy influence not just what we believe but how we act—or don't—in the world of personal finance.

Harvard's John Y. Campbell, last year's recipient of the Skandia Research Award on Long-Term Savings, is a leading expert in household finance and asset pricing. During his visit to Stockholm, he discussed the common financial pitfalls, essential advice for households, and what Sweden can learn from global mortgage systems.

From saving for emergencies to shopping for financial products better, Campbell's insights offer a practical lens on finance and its complex role in household stability.

What would be your number one financial advice to households?

I would say, save up for emergencies and save for retirement. Think about it early. Do it early.

Global mortgage systems differ. From your re-search, what would you say Sweden can learn from other countries?

Mortgage markets are extraordinarily various across countries. It's a complete zoo. As we look around the world of different mortgage markets, I think the mortgage markets that work well are simple enough that it's easy for people to shop around. People, of course, are somewhat reluctant to do that, but the problem is made much worse when mortgages are very complex and have all kinds of special features. In my view, the key thing is to have a simple mortgage system that makes it easy for people to shop. Shopping for a mortgage should be as easy as you know, comparing bottles of aspirin on the shelf in the pharmacy, where it's the same ingredient and you just compare the price.

"People tend to learn too much from their own experience, and maybe talk to friends, but they don't learn enough from the broader environment around them, and then people really don't like to shop for financial products. Some things are fun to shop for. It's fun to shop for, clothes, food, maybe not so much financial products. And so, by failing to shop around, people end up paying too much."

—John Y. Campbell, Harvard University

How does mortgage regulation affect financial stability and household spending?

Mortgages are one of the main ways in which people not only fund housing but also smooth their consumption over the life cycle. So, if mortgages are available, it allows young people to buy a house, but also to spend money in a reasonable way. If there is not enough mortgage financing early in life, then people who are buying their first house become extremely constrained, and that, I think, is a serious problem. It also can even lead to delays in the formation of families. Many countries are worried about the demographic crisis. Having affordable housing is particularly important for that, and so the mortgage markets are absolutely critical.

The Swedish government has just recently proposed changes in current mortgage rules. In your view, are flexible mortgage rules essential to protect consumers and the economy?

I think it makes sense to allow people to borrow heavily early in life, and likewise, to borrow late in life, because older people are often, if you like, house rich and cash poor, and they should be probably borrowing against the value of their housing. Now it's people in the middle, people in middle age, who should be saving for retirement. I would favor a life cycle pattern whereby we liberalize borrowing for younger people and older people, but we do try to make sure that people in middle age are saving adequately for retirement, in part by paying down their mortgages. ♦

In The Media

The Harvard professor: This is how the mortgage market can be improved (Dagens Industri, November 13)

"Although the mortgage market varies significantly across countries, we often assume that our own system has numerous advantages," said John Campbell (Harvard University) in an interview with DI. "On the contrary, I believe there is much we can learn from other countries, and we should not assume our system is the best by default." Campbell offers insights on improving the efficiency of the Swedish mortgage market, such as providing special loan conditions for young individuals purchasing their first home and for older homeowners who wish to stay in their current residences.

About the Skandia Award

To increase knowledge of how long-term savings contribute to a sustainable society, the Thule Foundation at Skandia supports research in the area of "Long-term savings." The Foundation provides graduate and postgraduate scholarships, master and bachelor theses awards, and hands out a research prize for outstanding researchers through the annual Skandia Award.

In 2024, Skandia and the Thule Foundation marked a significant milestone by honoring the 10th recipient of the Skandia Award. The award went to John Y. Campbell for his influential research on mortgages, savings, and investments. Campbell's work includes a comparative analysis of mortgage markets in countries such as the United States, Denmark, and Sweden, and examines their impact on financial stability.

Kajsa Lindståhl (Thule Foundation at Skandia), John Campbell (Harvard University), and Magnus Dahlquist (SHoF/Stockholm School of Economics). November 2024.

Rethinking Sweden's Mortgage Rules

Key proposals include raising the mortgage cap from 85% to 90%, easing amortization requirements, and introducing a new loan-to-income cap. The committee emphasizes a cautious, phased approach to prevent potential overheating in the housing market.

A committee commissioned by the finance ministry recommends adjusting Sweden's mortgage regulations to improve housing affordability and support financial stability. The proposed changes aim to ease financial strain on households, especially for first-time buyers, while curbing debt-driven housing risks.

Swedish House of Finance's researcher Peter Englund, Professor of Banking at the Stockholm School of Economics and chair of the committee, shares insights.

The Committee Proposed:

- Raising mortgage cap to 90%, easing amortization, and adding a 550% loan-to-income cap to curb debt-driven housing risks
- Portfolio-level regulation with 10% exemption for flexible lending
- Phased approach suggested to prevent rapid housing market expansion

What were the committee's main findings?

The current regulations consist of a cap on the loan-to-value ratio of all new mortgages and minimum amortization requirements. We find that both have been effective in reducing new mortgage loans. But the effect on financial stability is unclear, since they put a strain on household financial buffers and encourage more expensive consumption loans. The extent of this offsetting effect is hard to measure due to the lack of data. Furthermore, amortization requirements reduce cash-flow margins, thereby making households more vulnerable to disturbances. We conclude that the benefits to financial stability are unclear.

The welfare costs of the regulations, on the other hand, are clear. The regulations limit the ability of households to smooth consumption over the life cycle and increase the threshold for first-time home buyers.

What specific changes to existing regulations is the committee recommending, and what is the rationale behind these recommendations?

Given that the benefits of current regulations are unclear and that the welfare costs are obvious, we propose to increase the mortgage cap from 85% to 90%, and to reduce the amortization requirement to one percent per year for mortgages with a loan-to-value ratio of more than 50%.

Further, we propose a new regulation that puts a cap on the loan-to-income ratio at 550%, meaning that borrowers could take out a mortgage up to 5.5 times their annual income. This is meant to act as a backstop against a debt-driven house-price boom.

The committee has also been tasked to look into amortization requirements on the portfolio level. What are the advantages and disadvantages of requiring amortization requirements for individual loans rather than an institution's entire credit portfolio?

Regulating each individual loan is less flexible. This is particularly problematic for the loan-to-income cap, since current income may be a poor indicator of the borrower's ability to service a loan. Looking at the portfolio of all new loans is more flexible and allows the banks to account for individual circumstances. We propose to exempt 10% of new loans from the loan-to-income cap.

What problems do you see in implementing the changes that you recommend?
From historical experience, we know that rapid deregulation may trigger a lending and house price boom, in the worst case followed by a financial crisis, as in Sweden in the late 1990s or Denmark in the 2000s. We regard our proposal as a package, where the loan-to-income cap should act as a backstop against such a development. Furthermore, we propose to make the reduction of the amortization requirement in two steps, which would allow evaluating the effects of the first step before going further. ♦

In the Media

"Are reduced amortization requirements a good idea?" (Sveriges Radio, November 14)
The government has received a new investigation proposing that individuals should be able to borrow up to 90 percent of a property's price, face less stringent amortization requirements, and have their loan eligibility more clearly tied to income. But what opportunities does this create for young people to enter the housing market, and will these changes lead to increased household debt? Erik Thedéen, governor of Sweden's Riksbank, and SHoF's Peter Englund debated this topic on Sveriges Radio.

Are mortgage ceilings and amortization requirements designed correctly?
Peter Englund (SHoF/Stockholm School of Economics) explored these findings further at the SNS/SHoF Finance panel, together with Christina Nyman (Handelsbanken), Stefan Ränk (Einar Mattsson), and Jon Thor Sturluson (Finansinspektionen). November 2024.

Callable Bonds Mitigate Debt Overhang, Increase Corporate Flexibility

This new study examines the role of callable bonds in mitigating debt overhang and enhancing corporate flexibility. It demonstrates how these bonds enable firms to manage debt more effectively, improving their capacity to navigate financial challenges and pursue strategic investments.

Callable bonds, which issuers can repurchase before maturity, is an important tool of corporate financial management, according to an award-winning study by Swedish House of Finance's Bo Becker (Stockholm School of Economics), together with Victor Thell (Finansinspektionen), Dong Yan (Erasmus University), and Murillo Campello (Cornell University).

These bonds allow issuers to repay their debt before maturity, typically when market conditions improve, enabling companies to refinance at lower interest rates. This can improve investment incentives by reducing debt overhang and providing greater flexibility, the study showed.

These benefits of callable debt are particularly valuable when credit markets are strained and new bonds are issued at high cost; "The issuance of callable bonds has spiked both during the 2000–2001 recession, the Financial Crisis, and the COVID-19 Crisis," the authors say, noting that the share of callable bonds in new corporate bond issues grew from 35% in 2000 to 89% by 2020.

Managing Debt in Tough Times

The appeal of callable bonds lies in their ability to offer a safeguard against adverse financial conditions. For example, if a company's credit rating improves or if market interest rates decline, it can call the bonds and reissue them under better terms.

The authors found that callable bonds typically offer about 27 basis points (0.27%) higher yields at issuance compared to non-callable bonds, compensating investors for the potential risk of the bonds being called early.

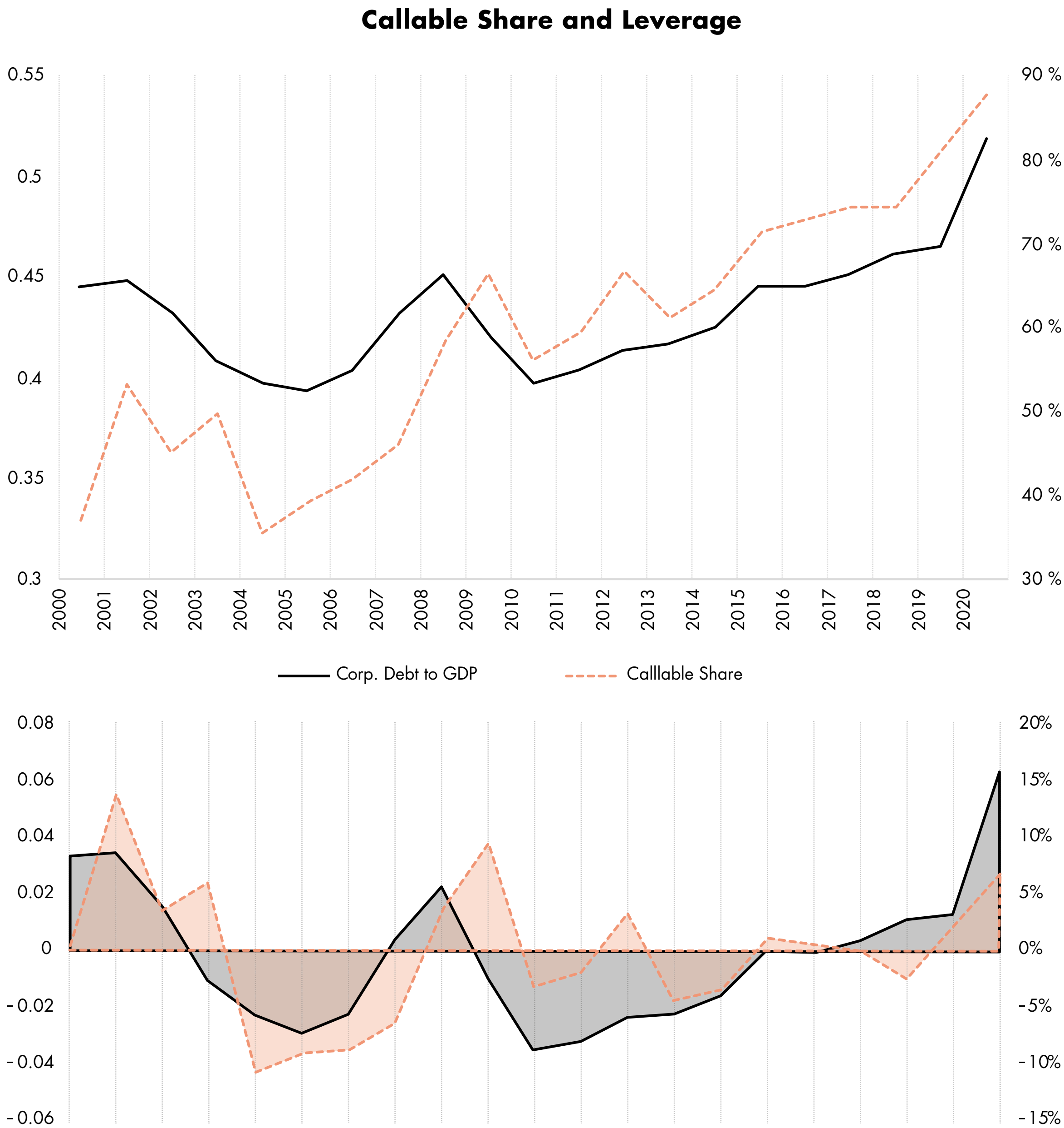
Callable bonds also address debt overhang, where existing debt discourages companies from investing in new projects. These bonds allow companies to buy back their debt at or close to par, meaning at nearly the original value of the debt. This flexibility makes it easier for businesses to pursue growth opportunities, such as mergers.

Key in Corporate Finance

Callable bonds have become essential in corporate finance for managing financial risks, particularly in volatile markets. The study emphasizes their critical role in capital structure decisions and corporate

Key Findings

- Call features reduce debt overhang by capping debt investors' returns
- To compensate investors for the lost upside, callable bonds offer higher yields
- Non-investment grade and long-term bonds are most likely to include call features
- Issuance of callable bonds rises during periods of credit market stress



Note: This figure presents U.S. corporate debt (as a percentage of GDP) from Flow of Funds data, and the callable share of new bond issues from Mergent FISD. The top panel shows the levels (leverage on the left scale), while the bottom panel displays detrended leverage and callable share. The correlation between the two series is 0.6 (P = .001).
Source: Becker, Campello, Thell, and Dong. "Credit Risk, Debt Overhang, and the Life Cycle of Callable Bonds" (2023).

strategies, especially in facilitating mergers and addressing debt challenges.

The authors note that "debt callability is a key capital structure parameter—similarly to debt seniority and maturity—bearing important implications for observed corporate behavior." ♦

IQAM Prize: The study "Credit Risk, Debt Overhang, and the Life Cycle of Callable Bonds" was awarded the 2024 IQAM Prize for best paper on investment topics in the Review of Finance.

For boards to fully benefit from diversity, they must embrace a wide range of perspectives, including those shaped by different professional and institutional backgrounds.

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Power Shifts in Corporate Governance

From "Corporate Social Responsibility" to "Environmental, Social, and Governance" (ESG), corporate governance has undergone many transformations over the years. At its annual conference in August, the Swedish House of Finance (SHoF) brought together policymakers, business leaders, and researchers to discuss these shifts and focus on what truly matters. Wei Jiang (Emory University) advocated for a "diverse view of diversity," urging a focus beyond factors like gender and race, while Luigi Zingales (Chicago Booth) challenged the traditional profit-maximization model, calling for a broader rethink of corporate purpose.

This section also highlights insights from a study conducted by one of SHoF's researchers at an academic partner university. The study revealed significant gender differences, with women's wages being 25% more elastic and their dismissal rates 34% more sensitive to firm performance shocks than men's.

A New Era in Corporate Governance

At the Swedish House of Finance's Annual Conference, participants discussed how businesses are now expected to deliver financial returns while considering their broader societal, political, and environmental impact, and the implications for traditional corporate governance models.

At a conference hosted by the Swedish House of Finance (SHoF) and the European Corporate Governance Institute (ECGI), experts gathered to discuss the future of corporate governance. Among the participants of the panel discussions were: Luigi Zingales (Chicago Booth), Wei Jiang (Emory University), and Petra Hedengran (Investor AB), Wilhelm Mohn (Norges Bank Investment Management), Catharina Belfrage Sahlstrand (Handelsbanken), Ann Grevelius (Opti), and Mireia Giné (IESE Business School).

The speakers offered insights into how companies can navigate this complex landscape by rethinking both the composition of their boards and the role of shareholders in shaping corporate strategy.

Diverse View of Board Diversity

Wei Jiang, Asa Griggs Candler Professor of Finance at Emory University, discussed the multidimensional nature of board diversity, urging a move beyond the typical focus on demographic attributes like gender and race. Her study, which analyzed data from over 52,000 directors across more than 5,400 firms from 2000 to 2021, revealed that while demographic diversity has significantly improved, other critical dimensions—such as professional experience, educational background, and political viewpoints—remain underdeveloped.

Conference "Corporate Governance" with Wei Jiang (Emory University), Ann Grevelius (Opti), Wilhelm Mohn (NBIM), and Catharina Belfrage Sahlstrand (Handelsbanken), moderator Bo Becker (SHoF/Stockholm School of Economics). August 2024.

Jiang emphasized the need to broaden the concept of diversity to include these varied dimensions. She noted that political diversity, in particular, is often overlooked, leading to boards that become more politically homogeneous even as they diversify demographically. For boards to fully benefit from diversity, Jiang argued, they must embrace a wide range of perspectives, including those shaped by different professional and institutional backgrounds.

"From an economic perspective, in a decision-making body, we want everyone to somehow draw independent signals," Jiang explained. "By aggregating those independent signals, you can reach an informed decision that is also robust. If people come into the room with the same view and opinion, you might occasionally make a very correct decision, but that decision is unlikely to be robust given the dynamically changing landscape and society."

Shareholder Welfare — Not Value — Maximization

Parallel to Jiang's discussion on board diversity, Luigi Zingales, Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance at Chicago Booth, pressed for a broader rethinking

The conference was organized by SHoF researchers Bo Becker and Per Strömberg, in collaboration with the European Corporate Governance Institute (ECGI).

of corporate purpose. Presenting his research on "Corporate Democracy," Zingales challenged the traditional profit-maximization model, as articulated by Milton Friedman, arguing that it fails to consider the broader social impacts of corporate actions. Instead, he proposed a model of shareholder welfare maximization, where companies consider the societal and environmental implications of their decisions alongside financial performance.

Zingales highlighted the ethical dilemmas firms face, such as whether companies should lobby for policies that may harm society but benefit their bottom line. He questioned whether companies should act solely based on reputational risk or if they should consider moral implications, even if unethical actions could go unnoticed.

"You see, the contradiction in full force, is, if we really had to maximize profits at the whole term, as a CEO, you have a duty to lobby," Zingales said. "How do you solve this tension?"

In response, Petra Hedengran of Investor AB argued that the tension was oversimplified. She emphasized the importance of long-term shareholder value:

"That is very short-term thinking, a lot of shareholders and companies are actually working to create long term shareholder value. That means, yes, maximizing the value, but it's not equal to maximizing profits at the expense of other considerations. And I think the time horizon is really important here."

"Investor Assemblies" as a Solution?

The two panel discussions converged on the idea that modern corporate governance must evolve to reflect the complexities of today's business environment.

The concept of corporate democracy, as proposed by Zingales, complements the call for more comprehensive board diversity by suggesting mechanisms—like "investor assemblies"—to ensure

When Corporate Governance Meets Data and Technology

Wei Jiang, Asa Griggs Candler Professor of Finance at Emory University, was one of the keynote speakers at the conference. In an interview, she delves into how technology is reshaping this traditional board-centric system by improving efficiency and transparency, while also introducing new challenges.

Her study highlights that technological advancements, especially the use of "alternative data," have shifted the balance of information in corporate governance. Outsiders, such as investors, now have access to vast amounts of non-traditional data (e.g., satellite images, social media sentiment) that can offer insights into a company's performance before management is aware of these developments. This shift in information access can potentially give more power to outsiders and affect decision-making within firms, as the data gathered externally can be more timely and accurate than internal reports. This creates a new form of information asymmetry, not between insiders and outsiders, but among outsiders themselves, depending on who has the resources and expertise to process the data.

"[Data and technology] shift the power of decision making; we can have more and more outsiders who are providing input and insights into the firms' decision making."

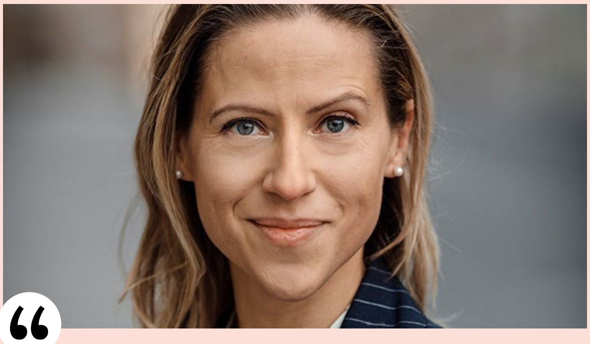
—Wei Jiang, Emory University

Collaboration Between Industry and Academia

Catharina Belfrage, Chief Sustainability and Climate Officer at Handelsbanken and member of the Swedish House of Finance (SHoF) Advisory Board, emphasizes the importance of combining academic insights and industry action to drive sustainable finance. Belfrage leads the bank's efforts to align with climate goals, including achieving net-zero emissions by 2040 and halving emissions in key lending areas by 2030.

"Our main challenge is that nearly all emissions are indirect, originating from customers we extend credit to," says Belfrage. "Broad engagement and financial incentives are essential for meaningful progress."

Belfrage's engagement with SHoF provides opportunities to collaborate with researchers and students, drawing on insights into ESG risks and sustainable finance. She highlights that collaboration bridges practical challenges and academic exploration, guiding research toward areas that can most benefit the financial system. This exchange of knowledge supports the development of meaningful solutions for both the industry and society.



“I imagine input from industry practitioners, which highlights challenges and needs, helps inform researchers about which financial research areas would most benefit the financial system."

–Catharina Belfrage, Handelsbanken

SHoF-ECGI conference "Corporate Governance" with keynote speaker Luigi Zingales (Chicago Booth). August 2024.

that the diverse perspectives of shareholders are represented in corporate decision-making.

These investor assemblies, modeled after citizens' assemblies in political governance, would allow for a more representative sample of shareholders to influence corporate policies, potentially leading to decisions that better align with societal values. This approach addresses the challenge highlighted by Jiang: ensuring that diversity within corporate leadership translates into more effective and socially responsible governance. ♦

We are grateful to the Swedish Securities Markets Association and the Jan Wallander and Tom Hedelius Foundation for financial support.

In the Media

"Dictatorship on the stock market" (Kapitalet, Episode 402, December 16)
In this podcast, Luigi Zingales (Chicago Booth) explains that there is a democratic problem in the stock market and in society when a company fully ignores what the owners think.

Can Job Insecurity Push Employees Towards Entrepreneurship?

Sweden, known for its strong labor protections, became the focus of a study exploring how unemployment risk can encourage entrepreneurship. Researchers examined the impact of a 2001 reform to Sweden's "last-in-first-out" (LIFO) dismissal rule, which allowed small firms to exempt two employees from strict seniority-based layoffs. This policy exposed many workers to higher unemployment risk, leading to a notable increase in entrepreneurship.

Stockholm University's Ai Jun Hou, Sara Jonsson, Qinglin Ouyang, and Deakin University's Xiaoyang Li analyzed Swedish administrative data to trace the effects of the reform. They found that entrepreneurship increased by 2.25 percentage points among affected workers over five years—a 33% rise compared to employees whose job security remained unchanged. Workers with longer tenures were especially likely to transition into business ownership, suggesting that greater unemployment risk can act as a catalyst for entrepreneurial activity.

The study also dispels the notion that such shifts result in lower-quality ventures. Business outcomes like survival rates, value added, and income growth showed no evidence of underperformance. In fact, businesses started by those exposed to higher unemployment risk performed similarly or slightly better than others. This finding challenges the stereotype of "forced entrepreneurs" driven by necessity rather than opportunity.

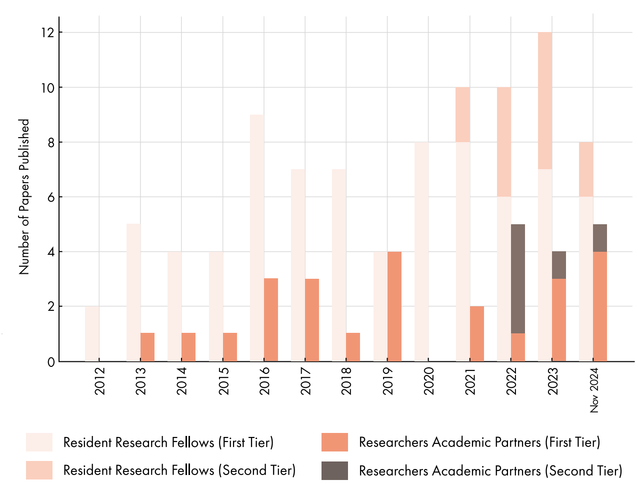
For policymakers, the implications are significant. Sweden ranks low among OECD countries for entrepreneurial activity, and the research highlights how rigid employment protections can hinder entrepreneurship. Even small reductions in job security, as seen in the LIFO reform, can spur productive entrepreneurial efforts. With over 80 countries worldwide implementing similar seniority-based protections, these findings have broad relevance. ♦

SHoF Programs for Academic Partners

Universities face challenges in attracting, recruiting, and retaining top international finance researchers. SHoF supports Swedish academia with three distinct programs open to researchers from SHoF partner universities (see page 62 for the full list).

- **SHoF Visiting Program** promotes collaboration by offering researchers workspace, access to SHoF's resources, and opportunities to join seminars and conferences
- **SHoF Fellowship Program** offers support for recruitment and provides financial monthly support to Fellows in academic partner universities. Certain criteria must be met to qualify
- **SHoF Publication Incentive Program** rewards researchers for publishing finance articles in a select group of leading academic finance and economics journals

Number of Papers Published by Resident Research Fellows and Researchers in Academic Partners



Note: 2024 data includes papers published by November. Top tier journals include the Journal of Finance, Journal of Financial Economics, Review of Financial Studies, American Economic Review, Quarterly Journal of Economics, Econometrica, Journal of Political Economics, Review of Economic Studies. In 2021, SHoF extended the publication incentive program to include three additional second tier journals: Management Science, Journal of Financial and Quantitative Analysis, and Review of Finance.

Women Face Higher Risks from Company Downturns

Much has been said about the gender pay gap, but a new study shifts the focus to how sudden changes in a company's performance impact women's wages and job security more than men's.

In an era of frequent economic disruptions—from geopolitical conflicts to rapid technological shifts—companies are increasingly facing shocks. A new study by Swedish House of Finance's Ramin Baghai (Stockholm School of Economics), along with Rui Silva and Margarida Soares (Nova School of Business and Economics), reveals that these challenges do not impact all employees equally: women's wages and job security are more vulnerable during company downturns than men's.

The study shows that when firms experience internal challenges—such as sudden drops in sales or financial difficulties—women tend to face steeper wage cuts and are more likely to be dismissed compared to their male counterparts.

Key Findings

- Women's wages are 25% more sensitive than men's
- Women are 34% more likely to lose jobs than men in downturns
- The gap is wider for women with children, at smaller firms, or where there are no female executives

The Gender Pay Stability Gap

Based on data from Sweden between 1990 and 2011, the study found that women's wages are 25% more sensitive to company performance changes, and they are 34% more likely to lose their jobs than men when firms struggle. These results indicate that when businesses face disruptions, women experience deeper financial impacts and are at a higher risk of job loss.

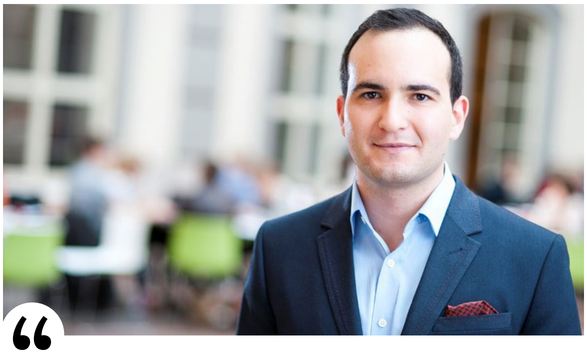
"Previous studies have consistently highlighted a gender gap in the level of pay, with women typically earning less than men," the authors note. "The stability of pay and employment is also highly valued by workers."

The gap is even wider for women with children, those employed at smaller firms, or in organizations without female executives, the authors add. While both men and women are affected by company downturns, women are hit harder, exacerbating gender inequality in the workplace.

Impact of Company Size and Leadership

The study found that the disparity in how men and women are affected by company downturns is more pronounced in smaller firms and those led entirely by men. In contrast, larger firms and companies with women in senior leadership positions showed less of a gap, suggesting that corporate policies and leadership diversity play a crucial role in protecting workers during tough times.

Smaller firms, which often have fewer formal human resource (HR) policies, may rely more on managerial discretion, potentially allowing biases to influence decisions about wage cuts and dismissals. Larger organizations, with more structured processes, tend to offer more stability



"Women take almost triple the amount of parental leave than men in Sweden, and they take about 22% more time off than men to care for sick children."

–Ramin Baghai, Stockholm School of Economics

across genders, while female-led firms provide a more equitable response to company shocks.

The Role of Family and Household Constraints

The study also highlights the role of family dynamics in widening this disparity. Women with children, particularly young ones, are more vulnerable to job instability when firms experience downturns. Caregiving responsibilities further contribute to the gender gap in job security, as women often face additional challenges balancing work and family life during periods of economic uncertainty.

"Women take almost triple the amount of parental leave than men in Sweden, and they take about 22% more time off than men to care for sick children," the authors explain, emphasizing how these responsibilities can increase women's exposure to job and wage instability during tough times. ♦

The PhD Student on a Mission to Close the Gender Gap in Financial Research

Ausra Speer, a PhD student at the Stockholm School of Economics (SSE), is addressing the gender gap in financial economics through her initiative, EmpowHERed CollabHERation.

"At SSE, the female-to-male ratio among finance PhD students is 1:3, and only 20% of professors in finance are women," she highlights.

The initiative focuses on fostering collaboration and tackling the unique challenges faced by women in male-dominated fields. "This project supports female scholars by sharing lessons, building skills, and creating equitable opportunities for career development," says Speer.

"These workshops aim to ensure that an author's gender no longer influences how their research is perceived. My goal isn't to undermine male colleagues but to help female researchers rise to the challenge effectively," she adds.

EmpowHERed CollabHERation hosts quarterly gatherings for women PhD students and is currently open to finance PhD candidates at SSE.

"My goal isn't to undermine male colleagues but to help female researchers rise to the challenge effectively."

–Ausra Speer, Stockholm School of Economics

The transition to a green economy necessitates substantial capital investment.

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Navigating Climate and Investment

SHoF researchers have steadily increased the number of studies on sustainability, environmental, and climate finance, with a significant number of published papers in 2024 addressing these topics.

SHoF's work is making a tangible impact, particularly through a study on carbon taxes that has been presented to governing bodies in Sweden, as well as to international organizations like the World Bank, United Nations, and OECD.

This section features highlights from a SHoF-hosted seminar that brought together stakeholders from academia, government, and business to discuss public-private partnerships aimed at achieving net-zero targets.

Carbon Pricing Significantly Reduces Emissions

Carbon pricing accounts for at least a third of emissions reduction between 1991-2015 in Sweden. Without it, emissions would have been 30% higher, underscoring the importance of effective carbon pricing policies in the global fight against climate change.

From Sweden and the U.S. to Brazil and Indonesia, countries around the world are looking into carbon pricing to reduce emissions.

Swedish House of Finance's researchers Per Strömberg (Stockholm School of Economics), Christian Thomann (KTH), Gustav Martinsson (Stockholm University), together with The National Institute of Economic Research's László Sajtos, used data from Sweden, which has the world's highest carbon tax rate and was one of the earliest adopters of carbon pricing. They examined Swedish carbon pricing between 1991 and 2015, analyzing its impact on company emissions.

The study found that carbon emissions fell by at least a third during the sample period. It also found that when the price of carbon increases, emissions fall significantly, and that without carbon pricing, Sweden's carbon emissions in 2015 would have been about 30% higher.

Sweden: An Ideal Testing Ground

Sweden was among the first countries to implement a carbon tax in 1991, and now has one of the highest carbon tax rates in the world.

The data collected from implementing the tax gave the researchers access to detailed emissions data from about 4,000 firms across 23 industries, ranging from steel manufacturing to food production, allowing them to build the most extensive firm-level carbon emissions database to date.

Sweden is therefore an "ideal testing ground" to evaluate how well carbon pricing works, the authors say.

Higher Carbon Pricing Led to Lower Emissions

The study found that when carbon taxes were higher, companies emitted less carbon both in the short and long term.

In the short term, when carbon taxes are higher, companies exempt from the carbon tax emitted more carbon compared to taxed companies (carbon emissions relative to firms' sales, not overall firm emissions). Taxed companies maintained their carbon emissions, while exempted ones increased theirs.

When taxed companies received a big marginal carbon tax reduction, their emissions rose significantly. And when non-taxed companies had to pay more tax due to changes in exemptions, their emissions fell, the study showed.

The study also looked at the long-term effects of carbon taxes, which need big investments and changes that take time. They found that a 1% increase in the cost linked to emissions resulted in about a 2% decrease in carbon emissions per unit of sales over three years.

Financial Constraints Limit Carbon Pricing Impact

The effect of carbon pricing on a company's emissions depends on how financially restricted they are. To understand this, researchers sorted companies based on their likelihood of facing financial constraints and studied how carbon pricing affected each group. They also checked if carbon pricing had different effects when financial markets were unstable.

Timeline of Sweden's Carbon Pricing:

1991

Sweden introduces a carbon tax on fossil fuels used in combustion engines and, among others, industrial heating. The tax is based on the amount of CO_2 emitted during combustion of the fuel, with caps and exemptions for the firms who were at risk of relocating to another country with lower or no carbon taxes, also known as "carbon leakage".

Years Following

Numerous changes to the carbon tax that affect both rates, tax schedules and exemptions.

2005

The EU introduces a cap-and-trade scheme for CO_2 emissions, called the EU Emissions Trading System (ETS). A cap-and-trade scheme sets a limit on the amount of greenhouse gas emissions that companies can release. Companies that emit less than their allocated allowance can sell their unused permits to companies that need them, creating a market for emissions permits. This had major implications for the Swedish carbon tax design.

2008-2011

Sites and facilities that were subject to the EU ETS are gradually phased out of the Swedish carbon tax regulation.

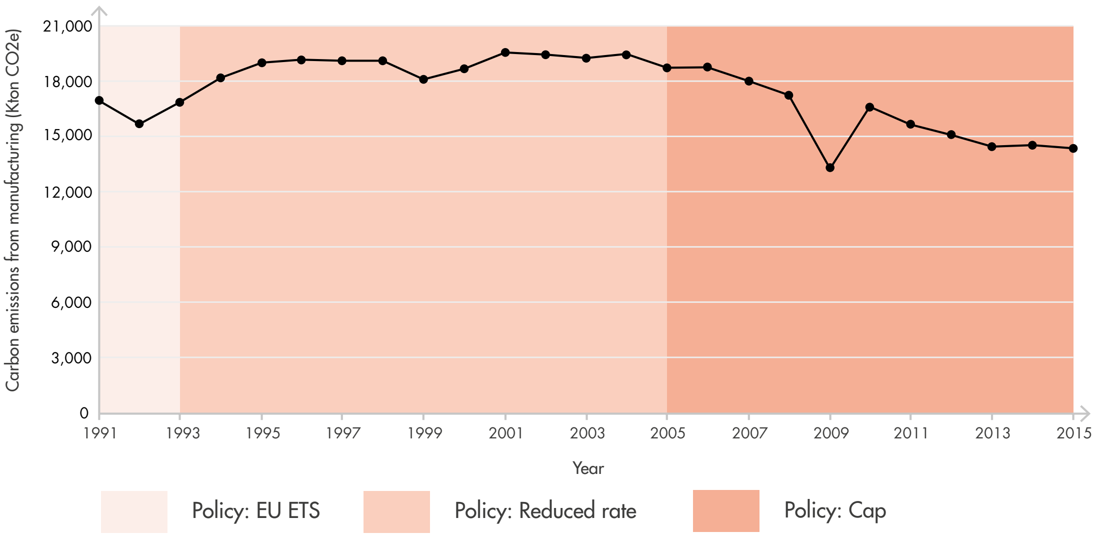
2013

Auctions of emission rights are introduced in the third phase of the EU ETS.

Present Day

The Swedish carbon tax continues to be levied on fossil fuels used in combustion engines and heating, still with lower rates for some firms, namely for domestic shipping and diesel used in working machines.

Manufacturing emissions during different policies



Insight: While periods of economic decline (such as 1992, 2000, and 2008) coincide with reductions in manufacturing emissions, these decreases primarily reflect pro- duction slowdowns rather than significant process improvements. During these periods the effect of carbon taxes on emissions is less visible as macroeconomic factors dominate.

Note: Simplified illustration of carbon pricing regimes. Illustration of how marginal carbon prices impact firms' incentives to reduce emissions.
Source: Martinsson, Sajtos, Strömberg, and Thomann. "The Effect of Carbon Pricing on Firm Emissions: Evidence from the Swedish CO2 Tax". (2024)

They discovered that bigger, established companies that pay out more dividends reduced their emissions more when carbon pricing was in place, compared to financially constrained companies. They also found that during financial upheavals, like the Global Financial Crisis of 2008-2009, carbon taxes had less impact. This suggests that when the financial sector is unstable, it is harder for manufacturing firms to decrease their carbon emissions.

Emissions Would Have Been Much Higher Without Carbon Pricing

The study found that carbon pricing was behind about a third of the reduced emissions and helped stop emissions from getting much worse.

In industries where reducing emissions is more feasible and cost-effective, such as motor vehicles and electrical equipment manufacturing, companies would have emitted up to 74% more. In sectors like cement and steel production, where cutting emissions is harder and more costly, companies would have had up to 38% higher emissions, the study found. ♦

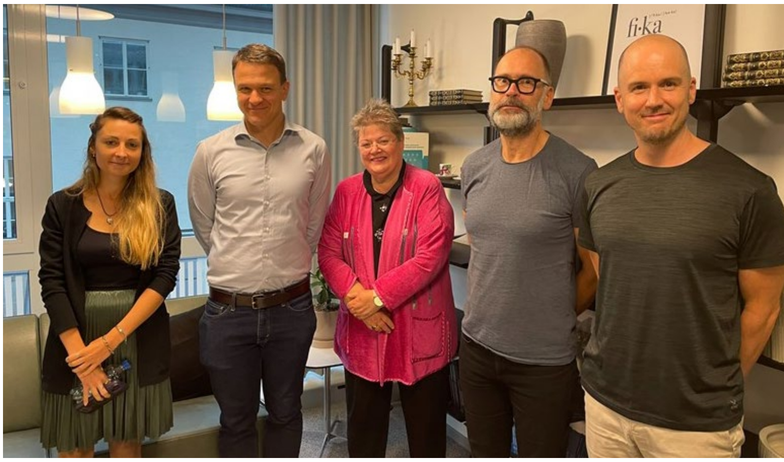
In The Media

"Taxes, activism or big capital – how companies' emissions can be reduced" (Sveriges Radio, March 22)
Christian Thomann is interviewed in Ekonomiekot Extra. A large part of emissions come from industry, and it is companies in the industry that need to make investment decisions to reduce emissions. They also have to enable research of new technology and new products, so their choice of path plays a huge role.

"Banks respond to climate criticism: Will increase lending to green areas" (Sveriges Radio, January 24)
Swedish banks are responding to criticisms that their lending practices contribute to climate emissions. Governing instruments such as carbon dioxide taxes are more important than banks' lending to limit emissions, Bo Becker says.

The Impact of SHoF Researcher's work

The Swedish House of Finance (SHoF) produces research that has an impact beyond academia. From sustainability to banking and corporate governance, the work by SHoF researchers shape policies, influence institutions, and tackle pressing challenges.


World Bank officials Alexandra Campmas and Susanne Åkerfeldt visited SHoF to explore the impact of Sweden's carbon pricing policies and their broader implications. September 2024.

Climate Policy

Per Strömberg, Gustav Martinsson, and Christian Thomann's work on carbon taxes has informed decision-making at the Swedish Ministry of Finance, the UN Subcommittee on Environmental Taxation, and the World Bank. Their insights have shaped OECD policies, with Thomann serving on the OECD's Scientific Council on Corporate Income Tax and Climate Change. This research has also gained media attention, featuring on Swedish Public Radio and German DW TV, further amplifying its impact.

Green Finance

Marcus Opp's study, Green Capital Requirements, has reached influential audiences, including Germany's Federal Ministry of Economics, the European Central Bank, and financial institutions worldwide. Their research offers actionable insights into balancing sustainability goals with financial regulations.

Central Banking

Adrien d'Avernas' research on central bank balance sheets has been presented to the Federal Reserve, Banque de France, and the European Central Bank. These findings have helped central banks address treasury market disruptions and maintain financial stability.

Sustainable Investment Practices

Mariassunta Giannetti's work on how sustainability ratings influence fund managers' investment decisions and the tradeoff between sustainability and performance has shaped discussions at the United Nations Principles for Responsible Investment and informed asset manager practices globally. Her research highlights the complexities of aligning investor preferences with financial performance, providing critical insights into sustainable investing dynamics.

Supply Chain Dynamics

Giannetti's paper, Supply Chain Shortages, Large Firms' Market Power, and Inflation, reveals how large firms gain a competitive edge over smaller competitors during supply chain disruptions. The study has been featured on VoxEU, cited by the Financial Times, and discussed in podcasts. Giannetti has shared her insights with major central banks, including the European Central Bank, NorgesBank, and Banca d'Italia.

Corporate Governance and Performance Pay

Alvin Chen's study Production and Externalities: The Role of Corporate Governance earned the WRDS Best Paper Prize for its actionable strategies to address externalities. The WRDS Best Paper Prize is an award sponsored by Wharton Research Data Services (WRDS) to recognize impactful research in finance and related fields. His other paper, Firm Performance Pay as Insurance against Promotion Risk, has also been featured in the Harvard Law School Forum on Corporate Governance, bridging academic research and real-world applications. ♦

Sweden's Green Leap through Public-Private Partnerships

In June, Swedish House of Finance (SHoF) convened stakeholders from academia, government, and business to discuss the benefits and challenges of using public-private partnerships to finance the green transition, helping countries meet their net-zero targets.

Sweden, known for its progressive environmental policies, is at a crucial juncture to meet the Paris Agreement's net-zero targets. At a seminar hosted by SHoF, stakeholders from academia, government, and business discussed policy innovations to drive the country and the world towards a sustainable future.

Industrial Strategy at the Forefront

Mikael Damberg, Sweden's former Minister of Finance, opened with a keynote emphasizing the synergy between environmental imperatives and industrial policy. He highlighted Sweden's rise from poverty to prosperity through innovative and sustainable industrial output, framing the green transition as essential not only for the planet but also for jobs and global competitiveness.

Panel discussion during the seminar "Financing the Green Transition: The Role of Private-Public Collaborations" with Karolina Ekholm (Riksgälden), Liisa Raasakka (European Investment Bank), Niklas Ekvall (AP4), and Otto Gernandt (H2 Green Steel), moderated by Aurore Belfrage. June 2024.

"The transition to a green economy necessitates substantial capital investment," he said, calling for bold leadership and policies to fund renewable energy, energy-efficient manufacturing, and sustainable transportation systems.

Harnessing Public-Private Partnerships

Public-private partnerships (PPPs) were highlighted as key to financing the green transition. Liisa Raasakka, Head of the European Investment Bank (EIB) Group for Sweden, noted that 75% of the EIB's Swedish lending supports climate investments. She stressed the need for transparency and structured approaches to manage risks in these investments.

Karolina Ekholm, Director General of Riksgälden, detailed credit guarantees for major industrial projects like H2 Green Steel and Northvolt. She clarified that these guarantees, which cover 80% of loans, are not subsidies but operate on market-based principles, ensuring taxpayers are not directly burdened.

H2 Green Steel pays for the guarantee, and the government charges fees to cover expected credit losses, plus an additional margin, Ekholm explained, adding that this ensures the program aligns with EU state aid rules and can even generate a profit for the government if companies avoid default.

The Institutional Investor Perspective

Niklas Ekvall, CEO of AP4, shared insights from the institutional investor's viewpoint. AP4, a public pension fund, has cut its carbon footprint and invested heavily in sustainable technologies and infrastructure. Ekvall underscored the importance of aligning public and private efforts to address market inefficiencies and share risks effectively.

"We have quite substantial investments that are dependent on long term agreements with the public," Ekvall said. "Every infrastructure investment, in one way or another, is on a long-term relationship with the public. You can call them PPP, you can call them regulation, you can call them other things, but they depend on a good relationship with the public where we share risks along the way."

Navigating Technological and Policy Risks

The seminar also addressed the risks inherent in technological and policy decisions. Christian Sandström, a researcher at Jönköping University, cautioned against over-optimism, citing past missteps like Sweden's failed ethanol car initiative. He advocated for technological neutrality and learning from past mistakes.

Gustav Martinsson, a researcher at SHoF and Professor in Financial Economics at Stockholm University, discussed his study on carbon pricing's impact on emissions, highlighting the dual market failures of carbon emissions and knowledge externalities. He argued for combining carbon pricing with subsidies to drive innovation in green technologies.

"[Subsidies] is a bad word for some people, but when it's warranted, it's warranted. We see examples of this with credit guarantees and the EU Green Deal," Martinsson said. While his research found that measures like carbon pricing have helped lower emissions, he added, "we see it's not enough." ♦

In The Media

"Experts: Bankruptcy protection in the US could be Northvolt's saving grace"
(Dagens Nyheter, September 20)
Bo Becker highlighted the U.S. as having the most efficient bankruptcy process, noting that its Chapter 11 legislation enables viable businesses to continue operating instead of being forced into liquidation.

Startups have a lesson to learn from Northvolt

In 2024, Northvolt filed for reconstruction in the U.S. under Chapter 11—a legal process that allows financially distressed companies to continue operations while restructuring debts, aiming to attract new strategic investors.

Northvolt's case serves as a cautionary tale for startups: cash flows are essential for managing debt, says SHoF Director Bo Becker in his Affärsvärlden column. Becker underscores critical financial principles from Northvolt's case:

- Companies with low or uncertain revenue should prioritize equity funding to avoid liquidity crises.
- Businesses with stable, high-value assets can borrow more easily. Startups without such assets face greater financial risks when relying on debt.
- Northvolt's situation underscores potential pitfalls in Europe's reliance on credit support over direct subsidies, which can increase financial risks for companies and taxpayers alike.

Together with a panel of experienced lawyers, Bo Becker examined the differences between Sweden's corporate restructuring system and the U.S. Chapter 11 process in a seminar. They highlighted how Sweden's approach can be complex and costly for small businesses while identifying opportunities for legislative improvement.

SNS/SHoF Finance panel "How can liquidation of viable corporations be avoided?" with Lars-Henrik Andersson (Cirio law firm), Louise Sjödahl (Ackordscentralen), Erik Selander (DLA Piper), and Bo Becker (SHoF/SSE). February 2024.

Post-crisis regulations shifted financial intermediation to shadow banks.

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Banking at Crossroads

The bank failures of 2023, driven by rising interest rates, poor risk management, and liquidity issues, have placed the banking sector at a crossroads. While much of the regulation targets large banks, the collapse of Silicon Valley Bank (SVB) highlighted how smaller institutions can create significant ripple effects.

This section includes studies on the rise of "shadow banks" amid tighter banking regulations and how this trend affects central banking. It also features an interview with Viral Acharya, finance professor at NYU Stern and former deputy governor of the Reserve Bank of India, discussing Basel III—a regulatory framework developed in response to the 2008 financial crisis.

In addition to regulatory challenges, banks are grappling with digitalization. A recent study shows that widespread bank branch closures reduce credit supply to small, young firms and increase the likelihood of business exits.

Geopolitical tensions also pose growing risks to the banking sector. This section highlights a seminar hosted by the Swedish House of Finance in collaboration with Sveriges Riksbank, featuring the governor of the National Bank of Ukraine (NBU), Andriy Pyshnyy. He discussed the strategic shifts and key measures implemented by the NBU to support Ukraine's economy during Russia's full-scale invasion.

Central Banking in the Era of Shadow Banks

How do shadow banks—unregulated non-bank financial intermediaries—impact central banks' ability to manage liquidity crises? Traditional monetary tools are no longer enough for financial stability, as recent central bank policies show, says Adrien d'Avernas.

The introduction of new regulations to address moral hazard issues, such as bailout expectations and implicit guarantees following the Great Financial Crisis, has pushed financial activities outside traditional banking, including hedge funds, money market funds, and insurance companies, which now play a crucial role in financial intermediation.

Consequently, central banks have had to adapt their monetary policy tools to reach these non-traditional entities, Adrien d'Avernas, Swedish House of Finance researcher and recipient of the Hans Dalborg Award for Excellence in Research in Financial Economics, said during his award presentation. He explained the implications of these changes and the evolving role of central banks in maintaining financial stability.

Key Findings

- Post-crisis regulations shifted financial intermediation to shadow banks
- Treasury disruptions and repo rate spikes show market rates diverging from policy rates
- To ensure smooth policy rate transmission, the Fed must actively lend and borrow in short-term markets
- Regular central bank interventions might have significant costs, but it is unclear what they are

The Shift to Shadow Banking

Post-crisis regulatory changes have addressed some moral hazard problems. However, these changes have fundamentally altered the financial system. Constrained by stringent leverage ratio regulations (rules that require banks to maintain a minimum level of equity capital relative to their total assets), traditional banks have seen a significant portion of financial intermediation migrate to shadow banks.

These institutions, operating outside the conventional regulatory framework, necessitate new approaches from monetary authorities to ensure effective policy transmission. To guarantee the transmission of the policy rate to these institutions, central banks have adopted unconventional monetary policy tools such as quantitative easing (QE) and various lending and borrowing facilities.

In this new regime, the Federal Reserve (Fed) has become a dominant player in short-term money markets. This omnipresence is unlikely to wane, raising questions about the long-term costs and implications of such persistent interventions.

Costly Balance Sheet for Banks

This disparity is most evident when Treasury yields exceed the repo rate (interest on short-term loans through repurchase agreements). Indeed, traditional bank, absent these balance sheet costs, should be able to arbitrage the difference between the yield on Treasuries and the repo rate by simultaneously buying Treasuries and borrowing in the repo market.

Leverage regulations limit banks' ability to engage in arbitrage, constraining market activity. Hedge funds now play a major role in pricing long-term U.S. Treasuries by holding large long positions (investments that profit from price increases).

[The drop in Treasury prices during COVID] is breaking with a very important historical correlation."

–Adrien d'Avernas, Stockholm School of Economics

Fragile Funding of Hedge Funds

During the COVID market turmoil, hedge funds' funding dried up, forcing them to sell Treasuries, which led to a drop in Treasury prices. This instability potentially undermines U.S. Treasuries' status as a "safe haven" investment, typically considered low-risk and reliable during market turbulence.

"And that is breaking with a very important historical correlation," d'Avernas said.

"During volatile times, people want more of this safe asset. So what happened here? At the beginning of COVID, there was a dash for cash. The supply of funding to the repo market suddenly shrank, hedge funds did not have any funding anymore, they needed to sell all these Treasuries, and the selling pressure made the price of these Treasuries decrease."

The Fed's Balancing Act

Quantitative easing has expanded the Fed's balance sheet to unprecedented levels necessary to manage the zero lower bound and reach unregulated financial intermediaries. Attempts to tighten this balance sheet, such as the 2018 initiative, were quickly reversed due to spikes in repo rates, demonstrating the delicate balance the Fed must maintain.

The September 2019 spike in repo rates, where rates soared to 6% in a single day, highlighted the fragility of liquidity in the market. Despite an abundance of central bank liquidity, regulatory constraints on banks' lending capacity created shortages necessitating Fed intervention. This incident underscored the limitations imposed by intraday liquidity regulations and the crucial role of the Fed as a stabilizing force in the repo market.

With banks restricted by leverage and intraday liquidity regulations, the Fed often finds itself as the dealer-of-last-resort. To ensure effective monetary policy transmission, the Fed must navigate a complex landscape, sometimes borrowing and lending simultaneously. This dynamic essentially forces the Fed to provide the very balance sheet space it restricts through regulation.

By understanding these dynamics, we can better appreciate the challenges central banks face in this new financial landscape. As shadow banks continue to grow in influence, central banks must continually adapt their strategies to maintain stability and effective policy transmission.

"But at what cost?" d'Avernas asked. "It is unclear what they are." ♦

In The Media

"The banks' business lending is facing new competition" (FinansWatch, September 27) "The banks have always had a fantastic source of funding in their deposits, but that advantage is shrinking over time," says Bo Becker about the intensifying competition for corporate lending.

Central Banking in Wartime

Central banks play a pivotal role in ensuring financial stability. The experience of the National Bank of Ukraine (NBU) during the ongoing war with Russia offers insights into how central banks can navigate and manage economic crises during periods of hostility.

During his visit to Stockholm, NBU Governor Andriy Pyshnyy took part in a "Fireside Chat" co-organized by the Swedish House of Finance (SHoF) and Sveriges Riksbank, where he engaged in conversation with Riksbank Governor Erik Thedéen. The discussion highlighted the NBU's strategic shifts and key measures to support Ukraine's economy during Russia's full-scale invasion.

Ensuring Financial Stability

One of the NBU's immediate priorities was safeguarding the financial system from the chaos following Russia's invasion on February 24, 2022. Acting swiftly, the NBU stabilized the economy by ensuring bank liquidity and maintaining payment system functionality, allowing ATMs and online transactions to continue uninterrupted.

To prevent a financial collapse, the NBU imposed limits on cash withdrawals, balancing the need to avoid bank runs while ensuring access to essential funds. This approach calmed public panic and reinforced trust in the banking system.

"From the point of view of a central bank, it was a maximum concentration of the scariest nightmares and all troubles that could eventually occur in one moment of time," Pyshnyy said.

Adaptive Monetary Policy

The war forced a departure from the NBU's pre-war strategies, which had focused on a flexible exchange rate and inflation targeting. Instead, the central bank prioritized monetary financing of the budget deficit to support defense efforts, resulting in peak inflation of 27%.

The NBU adapted with initiatives like the "Power Banking" project, equipping bank branches with independent power supplies and secure communication channels to remain operational during missile attacks and blackouts.

Fireside chat with Erik Thedéen (Riksbanken) and Andriy Pyshnyy (National Bank of Ukraine). June 2024.

"We do not rise to the level of our expectations, but fall to the level of our training," Pyshnyy said, reiterating a guiding principle of the NBU. This mantra underscores NBU's preparedness and rigorous training in effectively managing crises, Pyshnyy said, adding that the Ukrainian central bank had been preparing for hostile times for more than a decade, since the Russian invasion of Crimea in 2014.

International Cooperation and Support

International collaboration became a cornerstone of the NBU's strategy. Strengthened ties with financial institutions like the International Monetary Fund (IMF) and EU central banks ensured a steady flow of financial aid and technical support. The IMF's Extended Fund Facility provided a financial cushion and a framework for stabilization.

"The National Bank of Ukraine is in very active communication with the IMF," Pyshnyy said.

Additionally, agreements with central banks in ten countries, including Sweden, facilitated currency exchanges for millions of Ukrainian refugees, enabling them to access financial services in host countries.

Building Resilience for the Future

The NBU continuously refined its crisis management protocols, evolving from immediate stabilization to fostering long-term resilience and recovery. This included easing wartime restrictions and gradually returning to pre-war monetary policies where possible.

"After the first anti-crisis package, Ukraine and the Central Bank of Ukraine had to shift to the next package: resilience provisions," Pyshnyy said

Beyond traditional central banking, the NBU supported national security by coordinating with the government to direct financial resources efficiently toward defense and critical infrastructure projects. This highlights the broader role central banks can play during national emergencies.

Outcomes and Moving Forward

The NBU's measures have maintained macrofinancial stability, strengthened the FX market, and bolstered trust in the domestic currency and banking system. As Ukraine transitions to recovery, challenges remain, including securing domestic financing and reintegrating veterans into the workforce.

"Now we can just call it the recovery process. It is ongoing and it is a combination of our internal efforts and macro financial stability we ensured, and also the support of our international partners," Pyshnyy said. ♦

Is Basel III Sufficient in Preventing Another Financial Crisis?

Basel III is a global regulatory framework developed by the Basel Committee on Banking Supervision in response to the 2008 financial crisis. Its goal is to strengthen the regulation, supervision, and risk management of banks, and introduces stricter capital requirements, mandates higher liquidity reserves, and establishes leverage ratios to ensure banks can absorb financial shocks and avoid systemic collapse.

During his visit to Stockholm, SHoF interviewed Viral Acharya, C.V. Starr Professor of Economics at NYU Stern and former Deputy Governor of the Reserve Bank of India, about his research on Basel III. He discussed Basel III's relevance and its impact on global banking. He discusses the challenges banks face in meeting new capital requirements, as well as the effects on lending, risk management, and competition. Acharya also highlights key gaps in the framework, questioning its effectiveness in preventing future crises.

"It could very well be that we are regulating the banks, but the real risks have actually migrated and shifted over, perhaps re-packaged, transformed, into different versions and they're sitting in the non-banks."

—Viral Acharya, NYU Stern

Banking Without Branches: The Hidden Costs of Digitalization

Widespread bank branch closures can significantly reduce credit supply to firms, particularly short-term loans, leading to declines in employment and sales among local firms. The closures disproportionately affect small, young firms and increase the likelihood of business exits.

As the banking industry shifts towards digitalization, physical bank branches are disappearing. A new study by Swedish House of Finance's Bo Becker and Sverige Riksbank's Niklas Amberg examines the financial and economic consequences of widespread bank branch closures, using detailed data from Swedish banks and firms.

The study examines whether the move towards digital banking services, observed across the OECD and beyond, may reduce the availability of credit for small and medium-sized enterprises (SMEs). Traditionally, lending decisions for these firms rely on personal interactions and information gathered at branches. Without branches, banks may favor asset-backed loans, potentially hindering new business formation and entrepreneurship.

Key Findings

- Bank branch closures reduce credit availability for SMEs
- Employment and sales decline with branch closures
- Working capital decreases, while fixed assets remain unaffected
- The probability of firm exits increases with branch closures

Disappearing Bank Branches

The number of bank branches in Sweden has seen a dramatic decline, from nearly 1,900 in 2001 to around 750 in 2023. By the end of 2023, 43 out of 290 municipalities in Sweden no longer had a single bank branch.

This trend is not unique to Sweden; globally, the number of bank branches in OECD countries fell by 30 percent from the 2008 peak to 2022. Countries like France, Italy, and Spain have also experienced significant reductions, with branch numbers decreasing by 22%, 42%, and 65% respectively.

Diminished Credit Availability

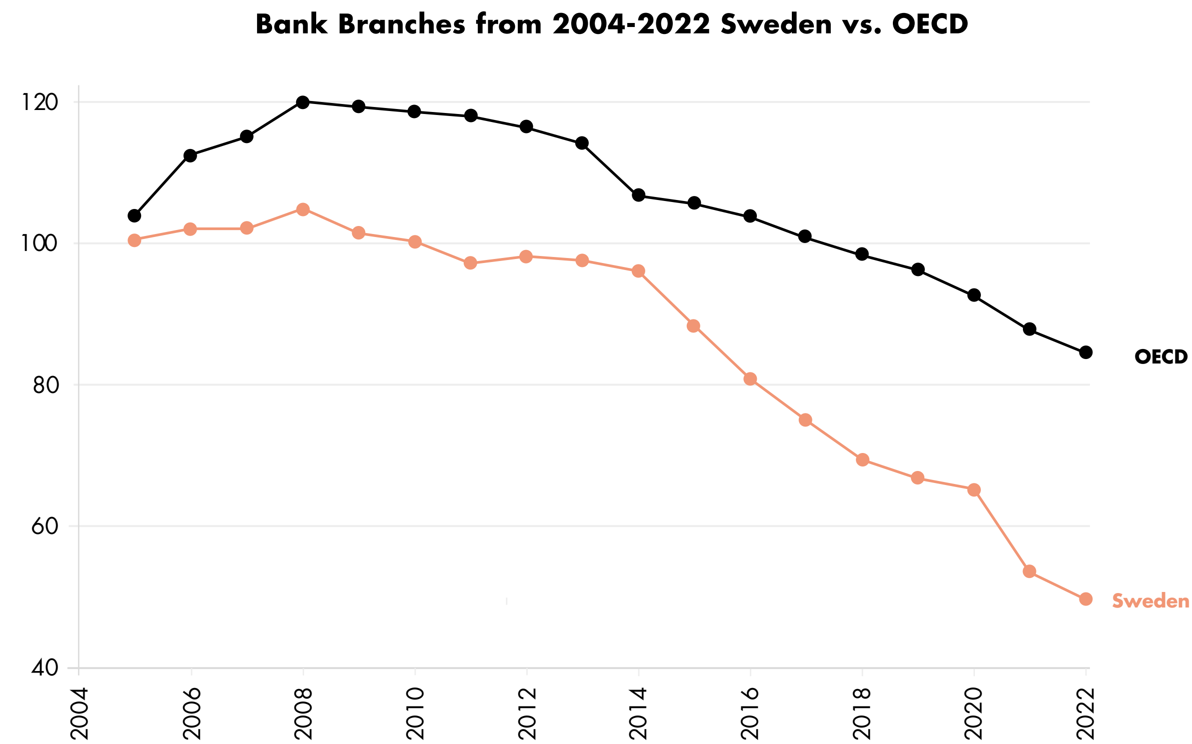
The closure of bank branches has led to a marked reduction in credit availability for local businesses. The study found that when a municipality loses 10% of its bank branches, the amount of loans given to local businesses that are not financial firms decreases by 1.8% within the next two years. This decline is most acute in short-term lending, essential for operational and working capital needs.

Employment and Sales Decline

Bank branch closures also precipitate declines in both employment and sales among local firms. The study found that a 10% decrease in branches results in a 1.3% drop in employment and a 1.8% decrease in sales over a three-year span. These effects on employment and sales take about a year to appear after the initial decrease in available credit due to bank branch closures, the study found.

Impact on Firm Assets

While the total assets of firms remain largely un-



Note: This figure shows the growth of bank branches in Sweden and the OECD from 2004 to 2022, using 2004 as the base year. Values indicate the relative number of branches compared to 2004. A value of 100 means the number branches is the same as in 2004; 110 indicates a 10% increase, and 80 indicates a 20% decrease.
This chart visuallty depicts the changes over time for both Sweden and the OECD.
Source: IMF

affected, their working capital (inventories and accounts receivable) saw a 1.3% decline over three years following a 10% reduction in branches. In contrast, fixed assets, such as buildings and machinery, did not show significant changes.

Firm Exits

The probability of firm exits rises with branch closures, the study found. The likelihood of a firm exiting the market increases by approximately 0.6 percentage points over three years if 10% of local branches are closed.

Disproportionate Impact on Smaller Firms

The negative repercussions of branch closures are particularly pronounced for small firms, younger firms, and those with fewer tangible assets. Small businesses experience a more significant reduction in lending due to their reliance on the soft information that bank branches provide.

"More generally, large-scale, technology-driven disruption, even if it is beneficial overall, is harmful to some activities and to some firms," the authors say. "In banking, technology-driven retail banking efficiencies may come at the expense of SME lending. Perhaps this creates an opportunity for new providers of SME loans to fill this gap." ♦

In The Media

"Small businesses suffer when bank branches close" (Dagens Industri, May 24)
A research report shows that Swedish small businesses suffer when the big banks close offices in rural areas. "The results are clear, without personal contacts it becomes more difficult for many companies to get loans and expand," Bo Becker says.

In 2024, US passive strategies surpassed active ones in total assets for the first time.

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New Investment Strategies

From crypto to mutual funds and even music rights, investors in 2024 are spoiled for choice—so much so that sometimes it's easier to sit back and let index funds do the heavy lifting. In 2024, the Swedish House of Finance (SHoF) tackled the challenges of this ever-evolving investment landscape.

In May, SHoF, together with the Stockholm School of Economics' House of Innovation, hosted a seminar on investing in music rights. This section also highlights an interview with Imperial College's Marco Di Maggio, who explores the true demographics of cryptocurrency investors. Spoiler: they're not all the risk-hungry thrill seekers one might expect.

The year also marked the debut of SHoF's "Fireside Chat" series, a closed-door gathering for partners and select guests from both the public and private sectors. This section features one of these exclusive discussions on the stock market implications of passive investing's explosive growth.

Passive Investing is Reshaping the Stock Market

The rapid growth of passive investing is reshaping the stock market, increasing volatility and reducing pricing efficiency. As more investors track indexes instead of picking stocks, new research shows the market has become more vulnerable to sharp price swings.

A recent study by Swedish House of Finance's researcher Paul Huebner (Stockholm School of Economics), together with Valentin Haddad (UCLA) and Erik Loualiche (University of Minnesota) reveals how the rise of passive investing is affecting the market due to imperfect competition. Their research suggests that as passive strategies dominate, the demand for individual stocks becomes more inelastic—meaning that changes in price have less impact on how much of the stock is bought or sold—disrupting the typical equilibrium and price-setting mechanisms that help stabilize the market.

Challenging the Conventional View of Market Competition

The authors challenge the conventional wisdom that financial markets are ruthlessly competitive, with less aggressive traders always replaced by others.

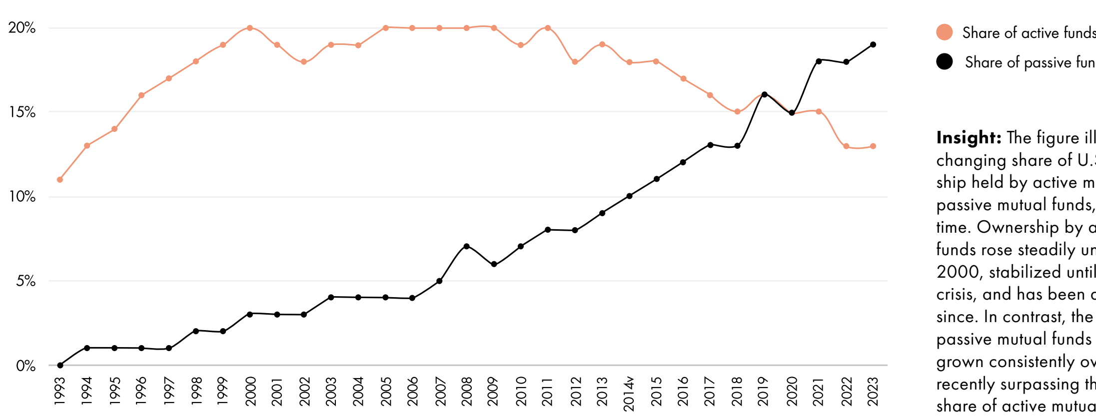
"If you stop looking for $20 bills on the floor, someone else will replace you," they say, describing the traditional view.

However, their findings present a more nuanced picture. When investors are surrounded by less aggressive traders—such as passive funds with zero price elasticity—the increased trading aggression from other investors only offsets about two-thirds of the initial impact. As a result, the stock market is less efficient.

Impact on Market Volatility and Liquidity

The study reveals that the rapid growth of passive funds has made stock demand 11% more inelastic in the U.S. stock market. By analyzing the strategic responses of institutional investors, the researchers

U.S. Mutual Funds and ETFs



Insight: The figure illustrates the changing share of U.S. stock ownership held by active mutual funds, passive mutual funds, and ETFs over time. Ownership by active mutual funds rose steadily until around 2000, stabilized until the financial crisis, and has been declining ever since. In contrast, the share held by passive mutual funds and ETFs has grown consistently over the years, recently surpassing the ownership share of active mutual funds.

Note: The graph excludes other stock ownership categories, such as banks, pension funds, life insurance companies, and households.
Source: ICI Facebook 2024

Key Findings

- The rise of passive investing is reshaping the stock market
- It has reduced the price elasticity of stocks, increased volatility
- Institutional investors may struggle to respond strategically
- Tech advancements and data access may also drive shifts in market dynamics

show how passive investing disrupts the market's ability to stabilize prices.

Using data from institutional portfolios, the study highlights how passive investing has weakened the strategic interactions that usually maintain price elasticity. As passive investing grew from $11 billion to $2.8 trillion between 1993 and 2020, it profoundly impacted market dynamics. A substantial portion of the stock market now is less responsive to shifts in supply and demand. This shift, the researchers note, could result in greater price volatility, reduced liquidity, and diminished price informativeness.

Constraints on Investor Reactions to Market Changes

Despite the decline in aggregate elasticity, the authors emphasize that the stock market is not becoming entirely inefficient.

Investors still respond to opportunities, but their ability to do so is constrained by factors such as informational frictions, market power, and contractual limits.

"While the effects of competition in strategies are strong, the stock market is far from the common view," they note, adding that the rise of passive investing only partially explains the shift in market dynamics; advances in financial technology and greater access to data have also significantly influenced investment strategies and market behavior. ♦

Fireside Chats

The Swedish House of Finance (SHoF) started its "Fireside Chat" series, an exclusive closed-door forum for SHoF partners and select guests from both the public and private sectors.

In 2024, US passive strategies surpassed active ones in total assets for the first time, according to Morningstar. While passive investing has lowered costs and improved diversification for individual investors, its broader market impact raises critical questions. SHoF researchers Paul Huebner and Alexander Ljungqvist explored the shift to passive strategies and its potential long-term effects on financial markets.

Key Insights:

- Collateral Damage: Passive investing heavily favors large-cap firms, distorting market valuations and increasing inefficiencies
- Corporate Governance Concerns: Passive investors' limited engagement risks weakening governance and reducing competition in product markets
- Regulatory Balance: Transparency and competition should be prioritized in regulation, with measures like enhanced disclosures to mitigate risks such as "closet indexing"

Fireside chat with Paul Huebner and Alexander Ljungqvist (SHoF/Stockholm School of Economics), attended by SHoF partners and organizations such as AP3, AP6, Fondbolagens förening, Highland Capital, and Lysa. October 2024.

Investing in Music Rights: A New Asset Class

The music industry has undergone significant transformations over the past two decades, evolving from a sector plagued by piracy and declining revenues to one experiencing remarkable growth and renewed interest from investors.

In a seminar, Merck Mercuriadis, founder of Hipgnosis Song Management, Willard Ahdritz, founder of Kobalt Music Group, and Swedish House of Finance's researcher Anders Anderson (Stockholm School of Economics) discuss how the rise of streaming services and new technology has created new opportunities for investing in music rights, establishing songs as a lucrative asset class.

The Decline and Revival of the Music Industry

Around 2000, the music industry experienced a severe downturn due to digitization and piracy. This "16 years of pain" saw revenues plummet and widespread uncertainty. The rise of streaming platforms like Spotify marked a turning point, making music affordable and accessible globally. Today, the industry is thriving, with double-digit growth attracting institutional investors.

"[Spotify's] ability to take music from being something that very few people paid for to being something that everyone pays for—and the data that comes with it—is really what ultimately makes this so interesting," said Mercuriadis.

Seminar with Willard Ahdritz (Kobalt Music Group) and Merck Mercuriadis (Hipgnosis Song Management), moderated by Anders Anderson (SHoF/Stockholm School of Economics). May 2024.

Music Rights as an Asset Class

Mercuriadis, who managed icons like Elton John and Beyoncé, highlighted the disparity in songwriter compensation compared to record companies. Songwriters, despite being the foundation of the industry, were often the worst paid. This inequity inspired him to establish Hypnosis, a platform treating songs as valuable assets and ensuring fair songwriter compensation.

"There is no music industry at all, without songwriters being there first. There's no publishing industry, there's no merchandise, there's no live promotions, etc. Everything begins with the songwriter writing the song, yet they are the worst paid people in the industry," he said.

Iconic songs with cultural significance, such as Journey's Don't Stop Believin' or Leonard Cohen's Hallelujah, provide predictable, reliable income streams and long-term value, generating substantial revenue even decades after release.

The Importance of Transparency and Data

A longstanding challenge in the industry has been the inefficiency and lack of transparency in tracking royalties. Historically, songwriters relied on outdated systems with little visibility into their earnings.

"Diane Warren used to receive ten-thousand-page statements that were taller than her at five foot seven, containing billions of microtransactions. She had a team of six people to comb through these statements and would often find $600,000 to $700,000 worth of income missing in any six-month period. It was a tremendously inefficient system," Merck said.

"The integration of music into health and wellness platforms [...] is expanding the market beyond traditional avenues. By 2025, it is projected that over 10% of total music industry revenue could come from these sectors."

—Willard Ahdritz, founder of Kobalt Music Group

Ahdritz co-founded Kobalt to address this, introducing a platform that allowed songwriters to track royalties in real time. This transparency empowered songwriters and attracted institutional investors by reducing risk and providing reliable data.

"We introduced transparency for everyone. Our clients kept their rights," Ahdritz said.

Future Opportunities and Innovations

Emerging technologies like AI-driven licensing and new consumption models such as virtual reality concerts are reshaping music monetization. ABBA's avatar show Voyage in London exemplifies how immersive experiences can create new revenue streams.

Additionally, the integration of music into health and wellness platforms, like Peloton, is expanding the market beyond traditional avenues. By 2025, over 10% of total industry revenue could come from these sectors, Ahdritz projected. ♦

Who's Betting on Crypto? Wealth, Risks, and the Real Investors Behind the Hype

Are crypto investors risk-hungry thrill-seekers, or do they mirror traditional, financially sophisticated investors?

During his visit to Stockholm, Imperial College's Marco Di Maggio discussed his research on the demographics of cryptocurrency investors. In an interview, he revealed how and why people invest: from responses to income shocks to seeing Bitcoin as an inflation hedge. With the rise of crypto ETFs and the integration of digital assets into mainstream finance, understanding who invests in crypto is more crucial than ever, he says.

"It's easy for regulators to pursue a heavy-handed approach if they assume crypto investors are mostly niche groups like Reddit traders or libertarian ideologues. However, our research, using detailed transaction-level data, shows that most crypto investors closely resemble traditional investors. Over 80% of crypto investors in our study also hold positions in traditional assets like stocks, and many of them have higher incomes and are financially sophisticated."

—Marco Di Maggio, Imperial College

Organization

The Swedish House of Finance (SHoF) at the Stockholm School of Economics is Sweden's national research center in financial economics. It serves as an independent platform where academia, the private and public financial sector can exchange knowledge and gain access to a global network of leading researchers in finance.

Research Team

The international research team at the Swedish House of Finance and the Department of Finance at the Stockholm School of Economics is one of the highest ranked research teams in Europe according to the Olin Business School CFAR Ranking by the Washington University.

Data Center

Access to high-quality financial data for research purposes stimulates academic research and contributes to higher education. SHoF Research Data Center has a national mission to develop and distribute valuable datasets to the benefit of the academic community. By providing this data to researchers and students free of charge, SHoF Research Data Center lowers the barriers to empirical research.

National PhD Program and Academic Seminars

The National PhD Program in Finance is open to all doctoral students in finance at Swedish universities. It gives PhD students the opportunity to participate in top-quality graduate level courses in finance. Leading researchers from around the world are invited to discuss their latest work at weekly academic seminars.

Partners

Funding is provided both by the Swedish government and the Swedish private financial sector. Our partners support independent, high-quality research in all areas of financial economics. SHoF collaborates with a range of academic institutions in Sweden and abroad. Our Swedish Academic Partner Program supports faculty recruiting and retention at finance departments and institutions in Sweden.

Our Researchers

The Swedish House of Finance (SHoF) hosts resident researchers from the Stockholm School of Economics. In addition, many researchers from partner universities visit the center for a few days or up to several months, every year.

ANDERS ANDERSSON

Associate Professor, Stockholm School of Economics

Anderson's research focuses on **behavioral and consumer finance,** as well as trading behavior of individual and institutional investors. He is currently interested in the relationship between knowledge, confidence and choices, particularly in the area of **sustainable investment.**

Read: Climate Polarization and Green Investment

GUALTIERO AZZALINI

Assistant Professor, Stockholm School of Economics

Azzalini's research lies in the intersection of **macroeconomics** and **household finance**, with a focus on **income risk** and its consequences for agents' choices, **inequality**, and the macroeconomy.

Read: Business cycle asymmetry of earnings pass-through

RAMIN BAGHAI

Associate Professor, Stockholm School of Economics

Baghai's research focuses on **corporate finance**. His latest work explores how mergers affect the **mental health** of employees; how **credit ratings** are used in the delegated management of **fixed income assets** to limit risk taking; and whether the provision of **wage and employment insurance** by firms differs for men and women.

Read: How Do Mergers Affect the Mental Health of Employees?

BO BECKER

Cevian Capital Professor of Finance, Stockholm School of Economics, and Director, SHoF

Becker's research is on **corporate finance**, especially **corporate credit markets**, **credit cycles** and **corporate governance**. Recent topics include how corporate debt contract features can improve investment efficiency, zombie lending to distressed borrowers in the Euro area, the design of delegated asset management in fixed income, and the optimal design of insolvency systems.

Read: Disruption and Credit Markets

CLAS BERGSTRÖM

Professor Emeritus in Finance and Law, Stockholm School of Economics

Bergström's research areas include corporate finance, **corporate and securities law**.

MARIEKE BOS

Docent and Deputy Director, Swedish House of Finance

Bos' research focuses on **household finance** and **empirical banking**, with current projects examining the impact of acquisitions on employee **mental health**, the economic effects of mental health diagnoses, intergenerational financial distress, and **consumer debt** resolution.

Read: Impulsive Consumption and Financial Well-Being: Evidence from an Increase in the Availability of Alcohol

ALVIN CHEN

Assistant Professor, Stockholm School of Economics

Chen's research focuses on **corporate finance**, **contract theory**, and **information economics**. He is currently studying how **broad-based equity pay** compensation may encourage **employee engagement** despite the inherent free-rider problem faced by lower-level employees at large firms.

Read: "Encouraging Employee Engagement: The Role of Equity Pay"

MAGNUS DAHLQUIST

Handelsbanken Professor of Finance, Stockholm School of Economics

Dahlquist's research interests lie in **asset management**, **asset pricing**, and **international finance**. He currently focuses on the **investment behavior** of individuals and institutions; **pension plan** design; **trading strategies** in the bond and currency markets; and **performance evaluation**.

Read: Institutions' Return Expectations across Assets and Time

ADRIEN D'AVERNAS

Associate Professor, Stockholm School of Economics

D'Avernas' research explores financial markets and the macroeconomy, focusing on **financial intermediation, monetary policy**, and **digital money**. Recent work examines money market disruptions, Treasury bill shortages, and stablecoin stability.

Read: The Central Bank's Balance Sheet and Treasury Market Disruptions

MEHRAN EBRAHIMIAN

Assistant Professor and Eva and Mats Qviberg Research Fellow, Stockholm School of Economics

Ebrahimian's research interests include **household finance**, **macro-finance**, and **human capital**. He uses empirical and theoretical approaches to study the impact of finance on the real economy, especially as it relates to **inequality**.

Read: Student Loans and Social Mobility

PETER ENGLUND

Professor Emeritus, Stockholm School of Economics

Englund's research areas include **real estate finance**, banking and **financial stability**. He is currently interested in taxation and other housing market policies as well as **macroprudential policy**.

Read: Financial regulation and macroeconomic stability in the Nordics

MARIASSUNTA GIANNETTI
Katarina Martinson Professor of Finance, Stockholm School of Economics

Giannetti's research spans **corporate finance** and **financial intermediation**. Recent work explores supply chain shortages driving inflation, detecting greenwashing, monetary policy transmission, and synergies between banks and nonbank intermediaries.

Read: Supply chain shortages, large firms' market power, and inflation

ANASTASIA GIRSHINA
Assistant Professor and Deputy Director of the Institute for Micro Data, Stockholm School of Economics

Girshina's research focuses on **household and real estate finance**, with recent work on how education and gender influence saving, portfolio choices, and wealth accumulation. She serves as Deputy Director of the Institute for Micro Data (MiDA).

Read: Why Women Earn Lower Real Estate Returns

BJÖRN HAGSTRÖMER
Professor, Stockholm University

Hagströmer's main research interests are empirical **market microstructure** and empirical **asset pricing**. His current focuses include information revelation in financial markets, large and long-term investors in fast and fragmented markets, and liquidity measurement.

Read: The Determinants of Limit Order Cancellations

MAGNUS HANSSON
Assistant Professor, Stockholm University

Hansson's research interests center around **market microstructure**, **decentralized finance**, and **machine learning** applied within financial economics.

Read: Price Discovery in Constant Product Markets

PAUL HUEBNER
Assistant Professor, Stockholm School of Economics

Huebner's research focuses on **asset pricing** and **macro-finance**. His work centers on understanding institutional asset demand and its impact on **asset prices** and the broader economy.

Read: The Making of Momentum: A Demand-System Perspective

ALEXANDER LJUNGQVIST
Professor, Stefan Persson Family Chair in Entrepreneurial Finance, Stockholm School of Economics

Ljungqvist's research spans **corporate finance, governance, taxation**, investment banking, IPOs, entrepreneurial finance, private equity, venture capital, **asset pricing, market microstructure, innovation**, and patents.

Read: What is a patent worth? Evidence from the U.S. patent 'lottery'

GUSTAV MARTINSSON
Professor, Stockholm University

Martinsson's research interests lie in **Corporate Finance**, Climate and **Sustainable Finance** with a particular focus on **carbon pricing**.

Read: The Effect of Carbon Pricing on Firm Emissions: Evidence from the Swedish CO2 Tax

DIOGO MENDES
Assistant Professor, Stockholm School of Economics

Mendes' research focuses on **empirical corporate finance, financial economics,** and **development economics**, with current projects on zombie firms, labor markets, and **financial literacy.**

Read: The Impact of Financial Education of Executives on Financial Practices of Medium and Large Enterprises

OLGA OBIZHAEVA
Assistant Professor, Stockholm School of Economics

Obizhaeva is working in the areas of **institutional asset management** and **market microstructure**. Her most recent work analyzes the impact of **search engine technology** on financial markets.

Read: "OK Google": Online Visibility and ETF Fund Flows

MARCUS OPP
Professor, Stockholm School of Economics

Opp's research focuses on **contract theory** and **financial intermediation**. His recent work, awarded the European Finance Association's 2020 Best Paper Prize in Responsible Finance, examines **socially responsible investment** and integrating **climate change** into financial regulation.

Read: A theory of socially responsible investment

RICCARDO SABBATUCCI
Associate Professor, Stockholm School of Economics

Sabbatucci's research is focused on **empirical asset pricing**. Lately, he has studied the impact of the pandemic on financial markets and **payout decisions** of companies and the information embedded in high-frequency firm-specific data for **forecasting** purposes.

Read: The Term Structure of Cash Flow Risk

TOBIAS SICHERT
Assistant Professor, Stockholm School of Economics

Sichert's research focuses on **asset pricing** and **financial econometrics**, using **machine learning** methods to explore option returns and their relationship to underlying stock returns. .

Read: A Non-Linear Market Model

PAOLO SODINI
25th Anniversary Professor of Finance and Director of the Institute for Micro Data, Stockholm School of Economics

Sodini's research examines **savings, portfolio choices**, and **wealth inequality**. He studies **home-ownership's** economic effects and **gender bias** in real estate, leveraging big data on Swedish finances.

Read: Identifying the Benefits from Home Ownership: A Swedish Experiment

JAN STARMANS
Assistant Professor, Stockholm School of Economics

Starmans focuses his research on **corporate finance**, **sustainable finance**, **contract theory**, and **search theory**. He is currently exploring how quickly socially responsible investors can induce firms to reduce their negative externalities, and which investment practices they can use to have **timely impact**.

Read: The Pace of Change: Socially Responsible Investing in Private Markets

PER STRÖMBERG
SSE Centennial Professor of Finance and Private Equity, Stockholm School of Economics

Strömberg currently focuses his research on **private equity**, **angel investing**, and the effects of **carbon pricing** on firm behavior.

Read: Carbon Pricing and Firm-Level CO2 Abatement: Evidence from a Quarter of a Century-Long Panel

CHRISTIAN THOMANN
Associate Professor, KTH Royal Institute of Technology

Thomann's current research interests lie in Corporate responses to **carbon taxes, Environmental Policy** and Technical Change, **Risk Management** and Insurance.

Read: Can Environmental Policy Encourage Technical Change? Emissions Taxes and R&D Investment in Polluting Firms

ROINE VESTMAN
Professor, Stockholm University

Vestman's research interests focus on **households' and individuals' consumption, savings**, and housing choice and their **implications for the macroeconomy**. He also does research on the **design of pension plans**, and the functioning of the **mutual fund industry**.

Read: Designing Pension Plans According to Consumption-Savings Theory

YE ZHANG
Assistant Professor and Eva and Mats Qviberg Research Fellow, Stockholm School of Economics

Zhang's current research focuses on **sustainable finance** and **diversity** in the **venture capital** industry, as well as on the bargaining process in the **housing market**. She uses various field and lab-in-the-field experiments to conduct her research.

Read: Impact Investing and Venture Capital Industry: Experimental Evidence.

Data Center

The Swedish House of Finance's Research Data Center aims to develop and distribute valuable datasets for academics. Offering this data for free reduces barriers to empirical research for researchers and students.

Finbas

A high-quality financial database containing daily end-of-day stock price data, corporate actions and fundamentals from the Nordic stock exchanges, MTF's and OTC markets. Data is available for Sweden since 1912, Norway since 1980, Denmark since 1993, and Finland since 1986.

NASDAQ HFT

NASDAQ HFT (High-frequency trading) database contains all messages (orders, cancellations, and trades) sent and received to the Stockholm Stock Exchange matching engine. All datasets are based on the NASDAQ Historical ITCH files.

Serrano

The Serrano Database compiles company-level financial history since 1997 and covers most legal forms in the Swedish business community.

Nordic Compass

Environmental, Social and Governance data (ESG) information on 400+ publicly traded Nordic large and mid-cap companies since 2013. This data is collected from company reports and disclosures by a dedicated team, then organized and standardized. It includes ISIN codes and organization numbers, linking to other datasets.

PAtLink

PAtLink provides a file linking unique patent/trademark IDs with distinct organization IDs. The patent file covers all patents held by Swedish firms since 1990, sourced from Patstat, while organization numbers are pulled from the Serrano database. This pairing enables the connection of patent details with financial data for the corresponding patenting companies.

Fama-French

Factor The Fama-French three-factor model (market, size, value), developed by Eugene Fama and Kenneth French, improves on the traditional CAPM model by explaining a larger fraction of long-term expected return variations. This data set also includes the momentum factor proposed by Mark Carhart.

Historical Archives

The archives include: 1. Annual reports for companies listed at the Stockholm Stock Exchange from 1912 to 1978 2. Official stock lists from the Stockholm Stock Exchange from 1912 to 2007. 3. Weekly Swedish newspaper Affärsvärlden from 1901 to 2017 4. The annual publications of "Owners and Power in Sweden's Listed Companies" from 1985 to 2015

SHoF Fund Data Morningstar

SHoF Fund Data Morningstar is a dataset containing detailed historical data of more than 9,000 investment funds that are available for sale in the Nordic countries, including Sweden, Norway, Denmark, Finland. The majority type of funds in the dataset are open-end mutual funds, but there are also a small fraction of ETFs, hedge funds, money market funds, and closed-end funds. The dataset is created based on fund data from Morningstar. The fund performance result is dating back to 1970.

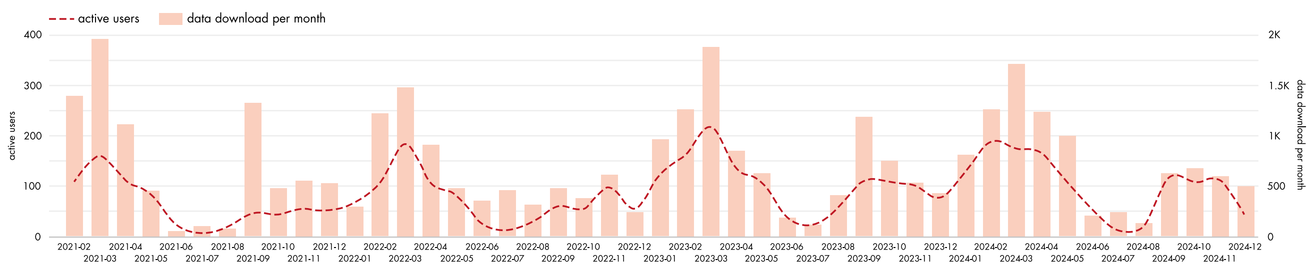
Who uses SHoF Data Center?

The Swedish House of Finance (SHoF) follows the usage of all the distributed datasets closely and in detail to assess the center's efforts. The figures show an overview of the usage on an aggregated level for the period 2021 to 2024.

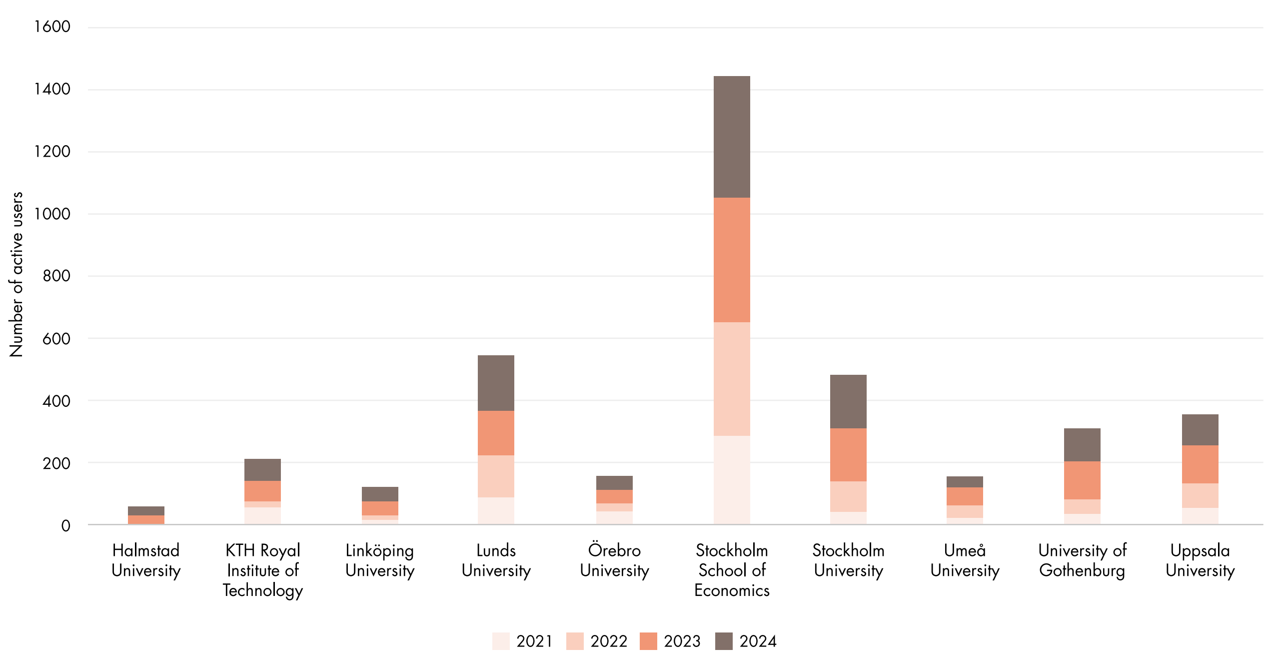
The usage has a typical seasonal pattern reflecting the demand for data by students' when time for thesis and the associated data collection with the peak month in march. In 2024, we had a total of 1227 active monthly users and 851 unique yearly users compared to 1262 and 811 respectively for 2023.

SHoF shares updates from the Data Center and about new datasets with all its academic partners. The figure (2) below shows active users by organisation for the period 2021 to 2024. The Stockholm School of Economics—which hosts Sweden's only department of financial economics—stands out with active users amounting to 1436, about 37% of total, followed by Lund 14%, Stockholm 13%, and Uppsala 9%.

Number of Active Users and Data Download by month (2021-2024)



Number of Active Users by University (2021-2024)



National PhD Program

The aim of the National PhD Program in Finance is to complement existing PhD education in Sweden by offering additional courses, workshops, and opportunities to visit the Swedish House of Finance (SHoF).

1. **Core courses:** The core courses cover the main areas of finance at a graduate level.
2. **Mini courses:** These are intensive courses in specialized areas of finance and are typically taught by leading external experts. The courses are free of charge and open to all PhD-candidates in financial economics at Swedish universities.
3. **PhD visitor program:** PhD students from other universities have the opportunity to visit and discuss their research with SHoF's PhD students and faculty and to participate in other research-related activities.
4. **National PhD Workshop in Finance:** This is an annual conference for PhD students from across Sweden to present their research and gain valuable feedback from both faculty and peers.

13th National PhD Workshop in Finance: Chunjie Wang (SHoF/Stockholm School of Economics) and Jakob Beuschlein (Stockholm University) received the Ola Bengtsson Award for the best Finance PhD paper. Talina Sonderhaus (Lund University) was also recognized for her excellent paper discussion. October 2024.

Courses taught in 2024

Continuous Time Finance

The development of derivatives markets may be the single most important innovation in financial markets in the last fifty years. Johan Waldén (Berkeley Haas) taught the mini course which focuses on stochastic calculus applied to problems within finance, including the celebrated Black-Scholes formula for pricing plain vanilla options.

Empirical Asset Pricing

Taught by Magnus Dahlquist (Stockholm School of Economics), this course is an introduction to empirical research in asset pricing. The goal is to familiarize with essential econometric methods, important empirical facts, and areas of current research interest.

Empirical Corporate Finance

This course, taught by Mariassunta Giannetti (Stockholm School of Economics), provides an empirical treatment of topics in corporate finance and financial intermediation, emphasizing the critical discussion of methods designed to answer counterfactual questions.

Household Finance

Paolo Sodini (Stockholm School of Economics) taught this course which focuses on how households should (normative) and do (positive) use financial markets to achieve their goals.

Theoretical Asset Pricing

This course initiates students to the economic principles behind models of rational valuation and investment choice. Taught by Johan Waldén (Berkeley Haas), the main focus is on the relationship between arbitrage and equilibrium, and how both conditions imply the existence of "state prices", positive discount factors.

Theoretical Corporate Finance

Taught by Jan Starmans (Stockholm School of Economics), the course begins with an economic overview of corporate institutions. As the semester progresses, discussion addresses corporate financing and agency costs and security design.

From Swedish House of Finance to the U.S. Fed

Martin Waibel, a former PhD student at the Swedish House of Finance, researches the effects of post-crisis bank regulations on intermediation in over-the-counter markets. In the fall of 2024, he joined the Federal Reserve Board as an Economist in the Monetary Affairs Division, specializing in financial intermediary analysis.

Can you explain your research?

My research sits at the intersection of empirical asset pricing and corporate finance, with a focus on financial intermediation, market microstructure, and machine learning applications. My latest work examines how post-crisis bank regulations influence intermediation in over-the-counter markets, where market functioning depends on intermediaries' market-making capacity. Leveraging regulatory transaction data, I study how Basel regulations affect intermediaries' capacity, their spillover effects on unregulated participants, and the impact on liquidity and returns.

What inspired you to pursue a PhD at the Stockholm School of Economics?

The exceptional faculty at the Swedish House of Finance drew me to the Stockholm School of Economics. During my time at the European Central Bank, I encountered work by several faculty members, which impressed me. The program's rigorous course structure and strong funding environment provided a solid foundation, enabling me to attend conferences and maintain a good quality of life throughout my PhD.

Congratulations on your new job at the Federal Reserve! How does this move align with your academic interests?

I'm thrilled to join the Federal Reserve Board as an Economist in the Monetary Affairs Division. My focus on both bank and non-bank intermediaries aligns well with the Board's policy-relevant work. I aim to continue exploring how regulations impact intermediation, particularly as the shadow banking sector grows. Central banks and regulators must adapt strategies to ensure effective monetary policy transmission while safeguarding financial stability. I also look forward to advancing projects like machine learning in option markets.

“

I would recommend that anyone considering a Ph.D. in Finance select a program that [...] gradually exposes students to the research frontier in specific fields while allowing them to acquire the specific technical skills needed for the question at hand. [...] it is absolutely essential to be surrounded by a broad set of experienced academics who are leaders in their field."

—Martin Waibel, former PhD student at the Swedish House of Finance

Advice for someone considering a PhD in finance?

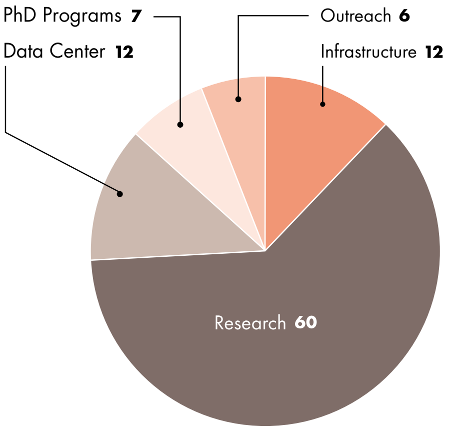
The finance profession evolves rapidly, reflecting changes in artificial intelligence, central bank digital currencies, and more. While these trends are exciting, fundamental finance concepts remain essential. A strong PhD program provides in-depth training in core economics and finance, introduces research frontiers, and develops technical skills. Surrounding yourself with experienced academics is crucial. Finally, remember that a PhD is a marathon, not a sprint. Take the time to find your true research interests rather than rushing into a topic. ♦

Center Financing

We are very grateful to all our partners for their financial support. Part of our success can be attributed to the fact that the Swedish House of Finance (SHoF) is recognized as an independent center of excellence. Mixed funding from government, research foundations and private industry allows for nonpartisan and unbiased research, which is equally important for the researchers themselves as well as those drawing on their competence.

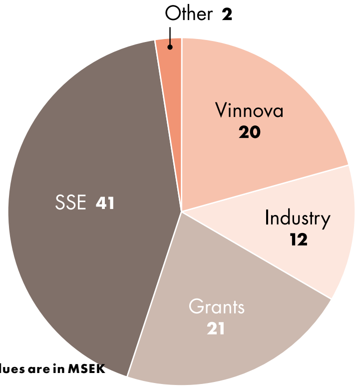
The total costs for 2024 amounted to SEK 96.9 million, compared with SEK 98.6 million for 2023. The center's costs are categorized in terms of five areas of activity:

Cost distribution in 2024



Note: Values are in MSEK

Funding distribution in 2024



Note: Values are in MSEK

Research: Salaries of researchers and funding for PhD students make up a significant part of research costs.

Research Infrastructure: The center aims to provide researchers with necessary research infrastructure, which is often difficult to fund through research grants alone. The core of these operations includes premises, management, and research administration.

Data Center: The Data Center has two principal tasks: (i) to develop national research databases in finance and an infrastructure which facilitates the work of researchers, and (ii) to provide researchers in Sweden with access to international databases in the field of finance.

PhD Courses: The costs are related to the remuneration of teachers for doctoral courses and the reimbursement of expenses for course participants from universities other than SSE.

Outreach: The outreach activities aim to bridge the gap between academia and practice by disseminating research via various channels such as conferences, seminars, press and social media.

Disseminating research in 2024

13	papers published in top 8 journals in financial economics
16	feature articles explaining financial research
22	new videos featuring leading experts
35	percent of those attending SHoF events were women
54	seminars, conferences and roundtable discussions
55	press mentions in major news outlets
2,649	newsletter subscribers, comprising 63% from the private sector, 23% from academia, and 14% from the public sector
21,064	downloads of Swedish House of Finance research papers on SSRN, formerly known as Social Science Research Network

Governance

Board of Directors

The Board of Directors consists of representatives from the Swedish financial industry and Stockholm School of Economics.

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The Management Committee plans, directs, and coordinates the activities at the Swedish House of Finance.

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Head of Department of Finance,
Stockholm School of Economics

MARIEKE BOS
Deputy Director

MAGDALENA EMREUS
Head of Outreach

GÖRAN ROBERTSSON
Executive Director

HENRIK TALBORN
Head of National Data Center

Scientific Advisory Board

The Scientific Advisory Board assists the management and the board with evaluating the academic activities of the Swedish House of Finance.

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Duke University

INGRID WERNER
Ohio State University

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The Advisory Board has a knowledge sharing mandate. The objective is to create a mutually beneficial knowledge exchange that drives research and development in the financial market. All our corporate partners are eligible to a seat on the Advisory Board.

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Government

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> We thank our partners and friends for making the Swedish House of Finance a world-class institution. Without your generous contributions of funds, time, and effort, the center would not be possible. We invite companies, organizations, public institutions, and private donors to collaborate with the Swedish House of Finance in our mission to strengthen the Swedish financial market through frontier-level research and fact-based discussion."

—BO BECKER, Director, Swedish House of Finance

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