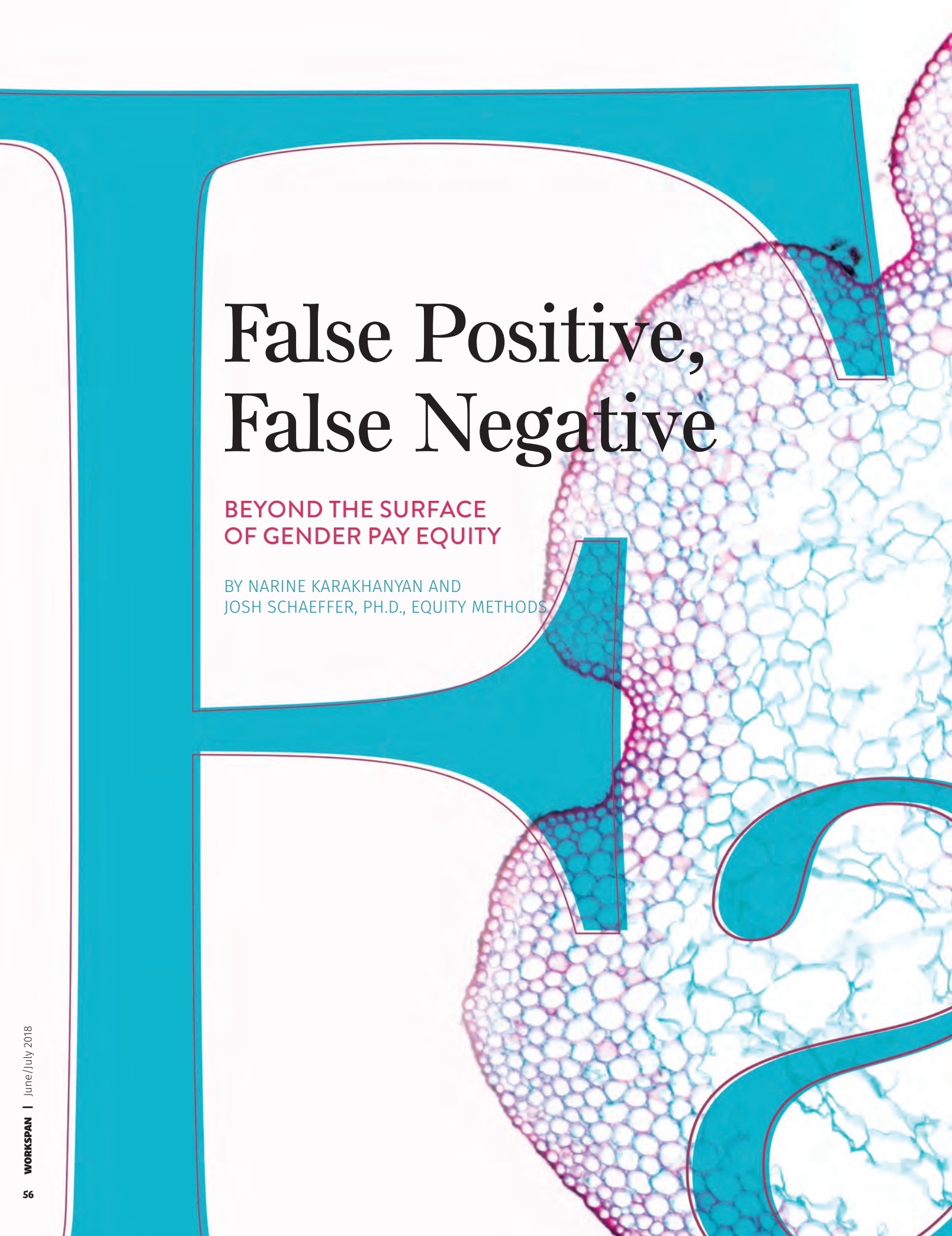
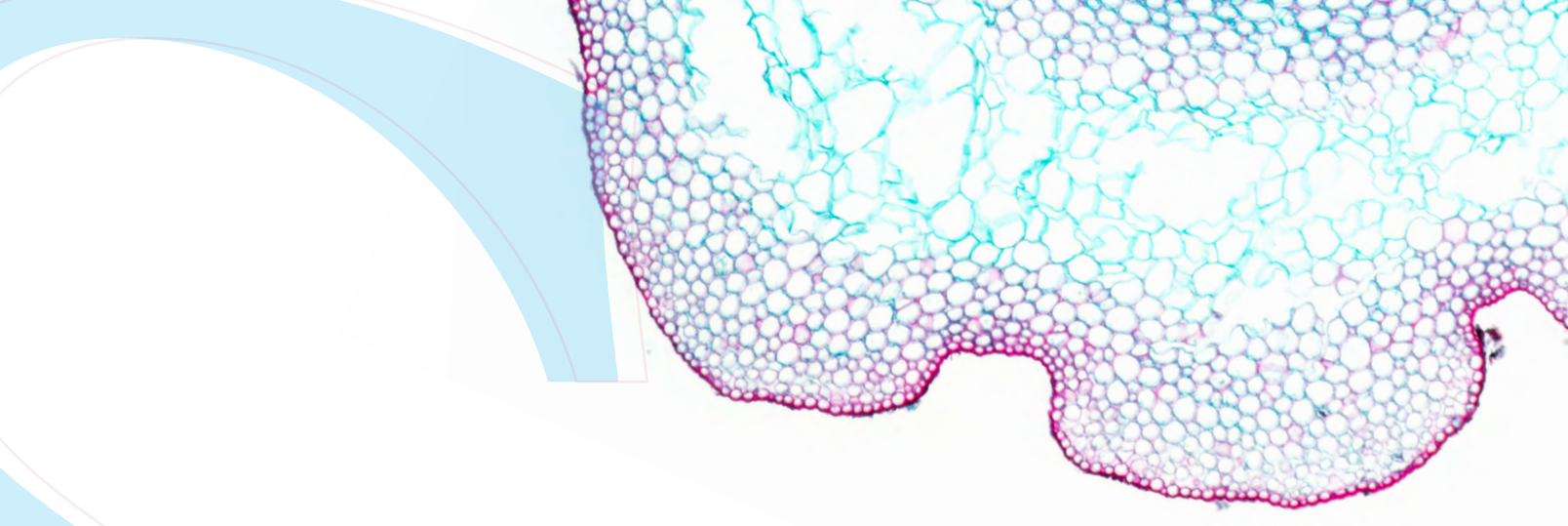
False Positive, False Negative

BEYOND THE SURFACE OF GENDER PAY EQUITY

BY NARINE KARAKHANYAN AND JOSH SCHAEFFER, PH.D., EQUITY METHODS





Shareholders are demanding it. Governments are legislating it. From Hollywood to Washington, technology to nursing, Millennials to Boomers, equal pay for equal work is now front-page news. With long-simmering tensions reaching the boiling point, gender pay equity has become a key issue that businesses can no longer avoid.

BREAKING DOWN THE GAP

Statistics can be inconsistent and even contradictory. One study might show high levels of inequality across a range of metrics. Another might appear to explain gender pay differences by variables such as age, education and experience.

Where's the truth? Buried in the details. Only through close examination of their own payrolls — and using and synthesizing results from multiple methods — can companies unpack the drivers behind variations in pay. Once they know these, then they tackle any gaps for which there is no reasonable explanation.

We wish we could tell you about a well-established, add-water-and-stir technique for understanding gender pay equity. The truth is that superficial analyses are prone to what, in statistics, are called Type 1 (false positive) and Type 2 (false negative) errors. A false positive concludes there is a pay equity problem when there really isn't one. A false negative fails to identify a pay equity problem when one, in fact, exists.

Your compensation strategy and overall pay fairness deserve a more nuanced approach. Here, we'll show how different statistical analyses can help explain variations in pay, then discuss ways to form an effective plan of action. There's no silver bullet: Each method has merit but answers different questions. Still, it's an analytical journey that anyone can take — one that can help you uncover actionable insights about gender pay equity in your own organization.

GETTING THE NUMBERS

Methodology I: Simple Average

Let's begin our journey with the most basic of tests: Calculate the average compensation of all male employees, then compare it with the average compensation of all female employees.

The advantage of this approach is that it's simple. That's the reason it's likely the first step in any well-conducted gender test. The disadvantage is that, by itself, it tells you very little — and might even mislead your analysis.

To illustrate, suppose the men in a company have more senior roles than women. This could be the result of men having more experience. On the other hand, it could be that men are awarded more senior titles for doing the same job. Simple averages tell us nothing about these possibilities. Therefore, stopping there is insufficient.

Methodology II: Matched Difference of Means Test

A somewhat more sophisticated approach is to look at the pay difference between two otherwise similar groups doing the same job at the same time. If the average male income in each group exceeds that of the average female, there could be a problem.

This method, called a difference of means test, is straightforward enough. It also allows for a modest amount of further testing to see if any difference is statistically significant or meets the intended framework of equal pay for equal work.

But difference of means testing still isn't sufficient to determine gender pay inequity. For one thing, it doesn't always account for variables such as tenure, performance or job complexity. Neither does it expose pay differences in roles or job levels that are exclusively male or female. Finally, a difference of means test provides no information about differences between employees in different groups.

Methodology III: Multiple Regression Analysis

For comparing employees across different groups, we have regression analysis. A regression analysis requires control variables that explain the pay gap between different groups. These might include rank, tenure, education and performance evaluations. Regression analysis also lets you test for the effect of other non-numerical variables such as gender and leave of absence.

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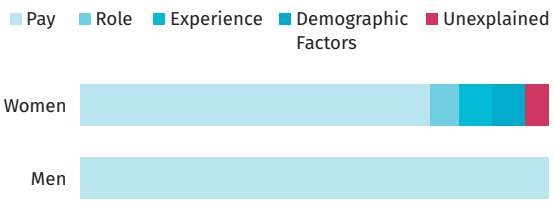

Figure 1 | **Explaining Differences in Pay Gap Using Role, Performance and Other Factors**

Here's an example: Suppose the women in your company earn 75 cents for every dollar their male counterparts make. A regression analysis detects that a big portion of the gap is due to role and experience plus other demographic factors such as education and location. However, some of the gap remains unexplained, requiring additional analysis and investigation. (See Figure 1.)

Regression models offer a great degree of flexibility. They can explain not only the value impact of these variables (i.e., how much someone can expect to make from one additional year of tenure), but also the value differential related to gender or any other area of concern. On top of that, regression models can show how the value of a variable (such as experience) can differ across roles or departments. They even can show the statistical likelihood of potential inequity.

What about employees that the model identifies as outliers? Regression analysis can flag them for further examination. For instance, Figure 2 shows a case in which most employees earning less than the expected salary range are female, indicating potential bias. But further analysis reveals that while most of the company's employees are in New York, the lower-paid group works in Kansas City, where the cost of living is substantially less.

None of this completely rules out a dimension of underpayment. But multiple regression analysis can yield an idea of which variables matter, to what extent they account for differences in pay and whether there's any part of the pay difference that these variables don't explain.

Understanding the Difference: Distinguishing Self-Selection from Inequity

Statistical analyses can do a good job of identifying differences between pay, but they don't do much to explain why those differences are happening. Consider an individual who self-selects out of a particular type of role. It could be because the role is hazardous. More men than women accept those hazards and, as compensation for the inherent risk in the job, they demand higher pay.

Then again, pay inequity just might be due to selection bias or a glass ceiling. Consider the company in Figure 3. Here, by all indications, pay levels are easily explained by factors such as role, experience and performance. This still doesn't tell us whether women might be afraid to ask for promotions — or whether men are promoted more than women.

Although job and experience levels affect pay, Glassdoor's 2016 "Demystifying the Pay Gap" study found that industry and other socioeconomic factors (e.g., college major, career decisions) carry more weight and these often are imbalanced by gender. In other words, statistical analyses can do only so much

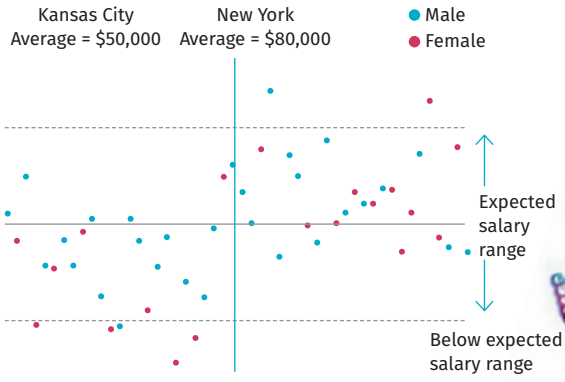

Figure 2 | **Identified Inequity Is Due to Geography and Likely Not Problematic**

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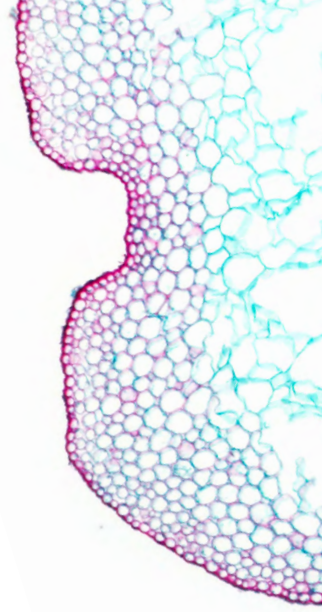

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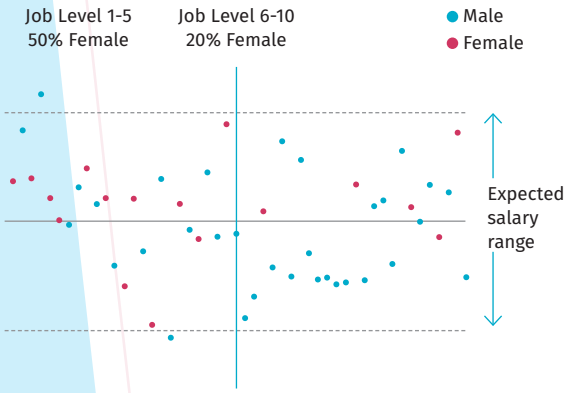

Figure 3 | **Regression Analysis Can Fail to Detect a Glass-Ceiling Effect if Role Is Included**

to explain differences in gender pay. Companies must be prepared to investigate thoroughly which drivers of pay might unwittingly link to gender or other biases.

FIXING THE PROBLEM: BUILDING A PLAN

If you do identify a problem, the changes you make should be tailored to your organizational results and needs. Equal pay issues within the same position might be the easiest fix because it's often possible to set up pay grades and make sure they're consistently applied between genders. Large adjustments can be taken right away. Small differences can be smoothed by adjusting raises and bonuses.

Other problems are harder to solve. For example, if women are less prevalent in higher-paid roles, companies need to think about why. If it's some factor such as women declining to work on an oil rig, then a differential in average pay might be acceptable for your organization. On the other hand, if company-specific factors are keeping women out of high-performance/high-pay roles — or women have a higher rate of exiting executive positions — you might be looking at some serious remediation.

Finally, issues may be economically systemic, such as male computer programmers outnumbering female ones. In that case, it can be particularly difficult to develop a gender-balanced workforce. Although workforce training may be an effective starting point, industrywide collaboration on items such as schooling, youth programs and support may be required to eliminate persistent gender imbalances in a long-term and sustainable manner.

By all indications, gender pay equity is an issue that's here to stay. A simplistic approach to dealing with it can fail to identify the root cause of pay inequity and lead to action that's counterproductive at best.

Experience tells us that a thorough, rigorous analysis is needed to match effective solutions with the appropriate problems. With that, boards of directors and shareholders can be assured that wherever gender pay issues may come up, the task of resolving them is in the right hands. **WS**

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