TIFF 35TH
INVESTMENT MANAGEMENT
35TH ANNIVERSARY

How Endowments and Foundations Can Manage Inflation Risk

Executive Summary

- Hedging inflation in endowment and foundation portfolios is challenging because many hedging instruments have proven largely ineffective for two reasons:
    1. Low reliability: they do not reliably respond to inflation in the way theory suggests.
    2. High opportunity cost: they supplant productive core portfolio allocations and underperform when inflation is benign.
- Many "classic" hedging allocations such as real estate, real assets, and gold fall in this camp, suffering from unreliability and/or high net cost.
- Other strategies, including portfolio duration management and inflation swap overlays, have shown efficacy with carefully managed implementation.

The Challenge of Hedging Inflation

Of all the risks faced by endowment and foundation (E&F) investors, inflation is among the most challenging to hedge. Over time an actively managed portfolio consistently focused on equities, taking prudent advantage of private investments and appropriately diversified, has the best chance of delivering a robust real return over inflation. However, as we've been reminded over the last few years, spikes in inflation can make this goal harder to achieve. An inflation hedging allocation seeks to mitigate these periodic challenges.

The theory is straightforward – two types of assets should work as hedges:

1. Those with intrinsic value that will make their prices grow with inflation. For most portfolios, the investable version of such assets is commodities, including gold, and some commodity-like real assets such as timber.
2. Those with the ability to increase their cash yields in line with inflation. These assets include rent-generating real estate, infrastructure real assets such as toll roads or utilities, and inflation-indexed securities such as the US Treasury's TIPS.

Of course, the reality is anything but straightforward for two basic reasons. First, the economy hardly sits by passively when inflation emerges (or recedes) – consumers, producers, and government all react, impacting demand, supply, interest rates, and fiscal policy in ways that can overwhelm the theoretical responses of inflation hedges, making them **less reliable**. Second, inflation hedges have meaningful **opportunity cost** as they generally underperform when inflation is benign and also supplant part of the core elements of an investment portfolio, costs which can outweigh their benefits.

Which Classic Strategies Have Worked?

So, if inflation hedges are unreliable and costly, how does one decide which (if any) to employ? One approach is to assess reliability and opportunity cost practically by modeling an investable hedging strategy and observing whether it would have added value to the type of portfolio E&Fs actually employ. Let us first look at the impact of the classic hedging strategies mentioned above: commodities, including gold; real estate and real assets; and TIPS. We focus on practical liquid implementations that i) are accessible to typical E&Fs and ii) can be added to or removed from a portfolio as inflation risks warrant.

We look at rolling 1-year periods, both inflationary and non-inflationary, during the past 40 years*. We choose 1-year periods because the response of hedges to inflation[1] can take time, and shorter periods, such as a quarter-year, may not show a relationship, while longer multi-year periods often incorporate both an increase and subsequent decrease in inflation, again muddying the relationship. For each asset, first, we check reliability by observing the correlation of returns with inflation – is there evidence that the asset responds to inflation as hoped?

If there is a meaningful correlation, we will then check the cost/benefit: the excess return generated by the hedged portfolio vs the unhedged portfolio. To assess this cost/benefit correctly, the core portfolio must be representative – what core investment do we forgo and replace with a hedge? E&Fs are endlessly diverse in many dimensions, but at a high level share a fundamental investment goal: **funding** their missions **reliably** and **effectively** over the very **long term**. Parsing this goal leads to common requirements for their portfolios:

- **Funding** requires ready liquidity for distributions, while their **long-term** horizon often permits prudent but meaningful high-potential illiquid private investment.
- Continued **effectiveness** requires, at a minimum, growth with inflation net of distributions, while **reliability** requires volatility management via diversification.

To achieve these requirements, a typical TIFF client portfolio might have an illiquid budget of 10-35%, with the balance in liquid assets, and about 2/3rds of assets in growth-driving equities with the balance in volatility-reducing diversifying investments. For this exercise, we

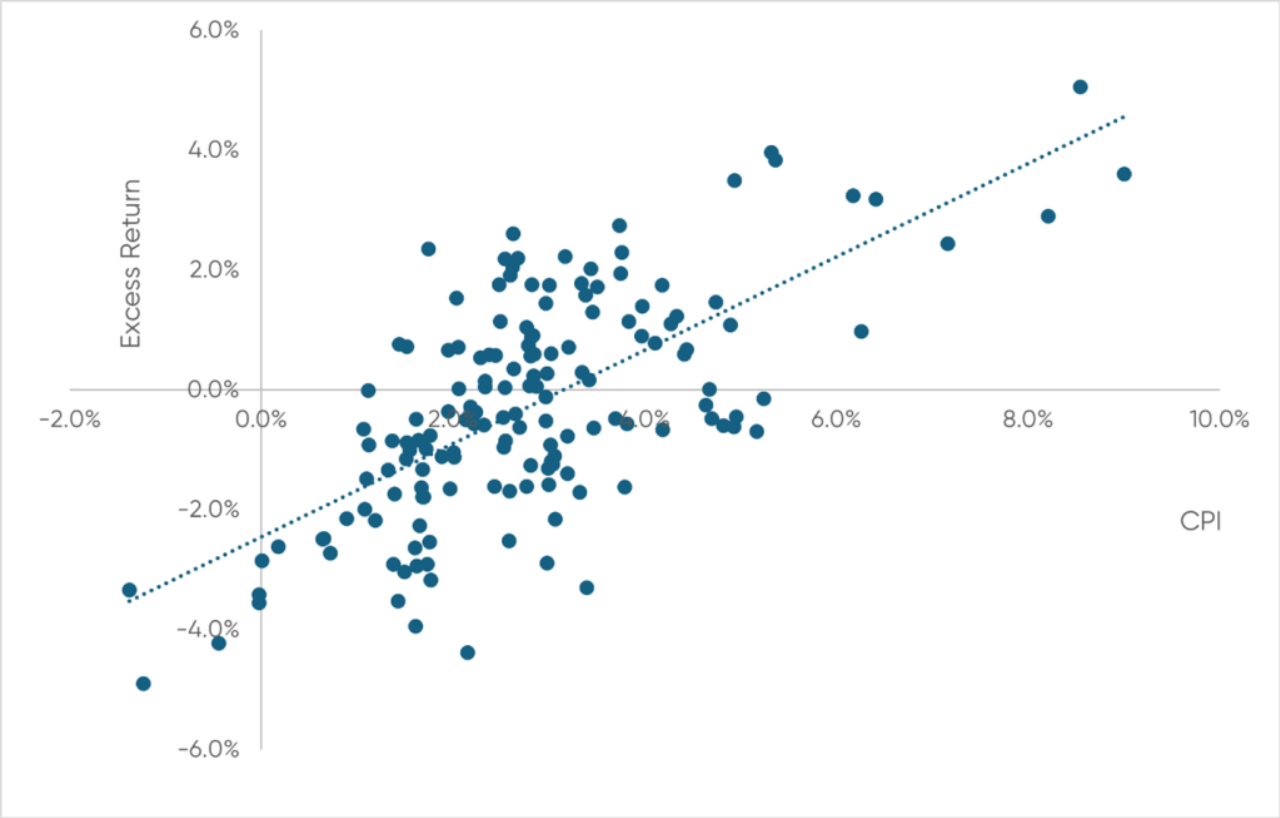
assume a core portfolio of 45% liquid equity[2], 20% private equity[3], and 35% fixed income[4].

Commodities and gold

A broad basket of commodities[5] has a correlation of about 0.64 over this period, indicating that statistically about 40% of its return is explained by inflation and that it has some promise as an inflation hedge. In contrast, gold[6], perhaps the most "classic" inflation hedging instrument, has a correlation of approximately zero. While there is little doubt that gold has some inherent inflation hedging power, this inflation response has generally been overwhelmed by all the other market forces driving its value. We do not rule out gold as a hedge but cannot call it reliable.

Having established that commodities have some reliability, we test adding commodities to the portfolio. Commodities are volatile but have very little correlation with equities, so they replace part of the core portfolio's non-equity diversifying allocation, 10% of it for our test.

Commodities Hedged Portfolio Annual Excess Return vs Annual CPI



We observe the high volatility and limited reliability of the hedge, particularly in years when inflation is not extreme: while about 40% of commodity return is explained by inflation, 60% is due to market forces unrelated to inflation. However, in the most inflationary (and

deflationary) years the relationship between commodities and inflation is more apparent. Across all observed periods, the commodity hedge generates approximately 0.75% additional return for each 1% rise in inflation—a significant contribution when endowments and foundations typically target a 5% real return. Commodities do not make sense to us as a permanent hedging allocation, but they can be valuable if selectively employed when inflation risks are emerging.

Real estate and real assets

Both liquid real estate[7] and liquid real assets[8] have correlations with inflation of about 0.1, indicating that inflation explains almost none of their returns. Some of their unreliability stems from factors noted above, such as the fact that in a dynamic economy, they may be unable to increase rents and other cash flows in line with inflation to the extent theory suggests. But the bigger factor degrading their hedging power is interest rate sensitivity. Real estate and real assets are inherently illiquid, but they are made liquid and readily investable via securitization in real estate investment trusts (REITs) and similar real asset structures. These structures are companies that borrow (typically 50% of assets or more) to grow and achieve equity-like returns and are negatively impacted by the rising rates that generally accompany inflation.

TIPS

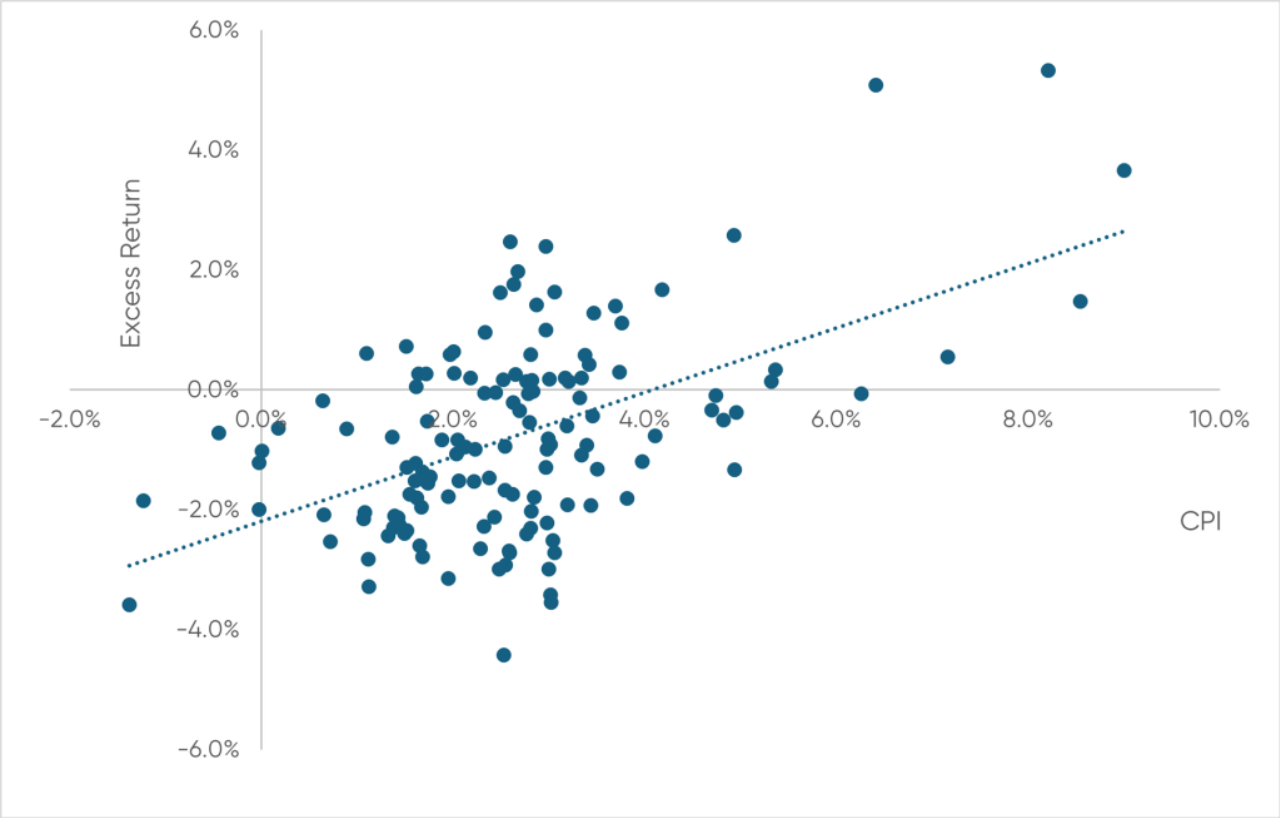
A broad TIPS index[9] has a correlation of approximately zero. This observation seems counterintuitive for an instrument indexed to inflation, but again, the reason is interest rate sensitivity. TIPS are bonds with duration, and on average their inflation indexing benefit is offset by their sensitivity to rising rates during emerging inflation.

What Other Strategies Can Help?

Short Duration

Since rising rates often accompany inflation, one approach could be simply to reduce the interest rate sensitivity (duration) of the portfolio. We model this strategy by exchanging longer-duration diversifying assets for cash-like very short-duration treasuries[10]:

Duration Hedged Portfolio Annual Excess Return vs Annual CPI



Similar to the commodity hedge, there is much volatility in most years as the return of interest rate exposure is, in general, not highly correlated with inflation; however, the relationship is again clearer in more extreme inflation regimes. Reducing portfolio duration when inflation-driven interest rate increases are anticipated clearly makes sense, but it's equally important to increase duration again ahead of interest rate reductions. The cost/benefit is moderate on average, as even if replacing the full 35% longer-duration allocation with cash (illustrated in the plot above), the portfolio's return increases by 0.5% for every 1% increase in inflation. Similar to commodities, shortening portfolio duration makes sense as an inflation hedge when applied selectively when risks are disproportionately towards higher inflation and rates.

Illiquid Real Estate / Real Assets

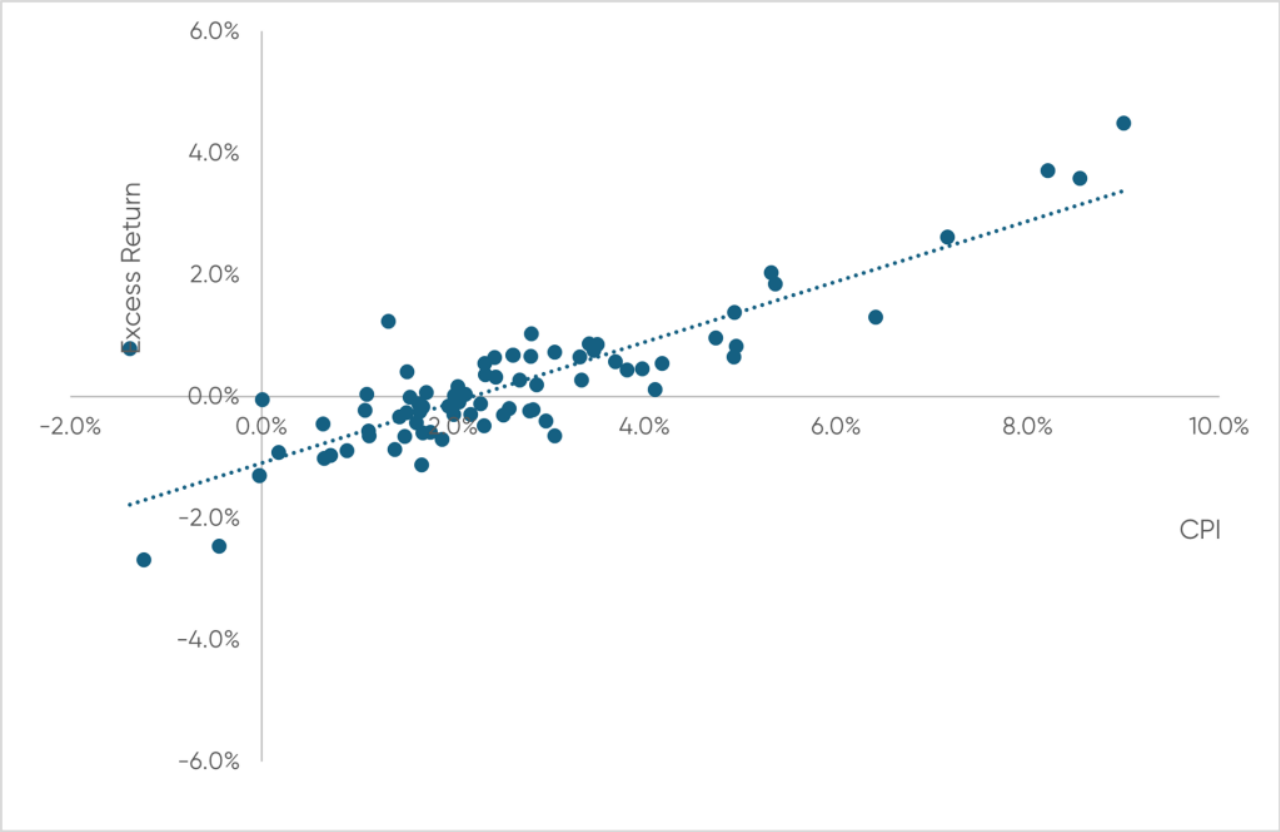
Another possibility is to replace some of the core portfolio's private equity allocation with private real estate or real assets. In illiquid form, these assets can be held directly without leverage and, therefore, with much less interest rate sensitivity. While private asset data is too sparse for the statistical analysis we have done here for liquid assets, we do believe that directly held real estate and assets demonstrate reliability against inflation. However, we also believe that for the typical endowment portfolio their opportunity cost is too great. The upside potential of private equity is too high to forgo for inflation hedging when there is a limited illiquid asset budget available. And unlike liquid hedges, an effective private asset hedge cannot be employed periodically but instead must be committed to and left in place

through complete inflation cycles. Private asset hedges can make sense for the largest endowments with very substantial illiquid allocations, particularly those with ancillary needs for real estate investment (such as universities and hospitals) and the very large scale necessary to consistently outperform in these sectors.

Inflation Swaps

An inflation swap is a derivative contract in which the payer pays an agreed-upon fixed rate at the outset of the swap while the receiver pays a rate equal to the inflation that is actually experienced during the swap's duration. The fixed-payer rate is thus effectively the prevailing breakeven inflation rate for the period. If realized inflation proves higher than this breakeven, the payer receives the difference, while if it comes in lower, the payer pays the difference. This instrument is purpose-built for inflation hedging and has several advantages. First, it is liquid and can be put on and taken off on a daily basis. Second, it has no direct interest-rate exposure, not only to rate duration but also to short-term rates. Third, while this market breakeven rate changes continuously, it is not very volatile (~2% annual volatility over the past ~25 years that this swap has been implementable**) compared to the core portfolio or the other hedges described above, which all have annual volatilities in the teens. This low volatility means an inflation swap can be added to the portfolio in large notional size without increasing overall portfolio risk. For illustration, consider 1-year swaps[11], which pay out based on realized inflation over 12 months:

Inflation Swap Hedged Portfolio Annual Excess Return vs Annual CPI



We observe very high correlation (~0.9) with inflation as hoped. At a size consistent with the swap's very low volatility (~75% of portfolio NAV), the portfolio, on average, gains a respectable ~0.65% for every 1% increase in in inflation. However, the swap is not a panacea because, as expected of any liquid market hedge, it is, over time, fairly valued: when inflation risks are high, the price of insurance goes up. During this period, these swaps post a gain in ~55% of rolling years and a loss in the other ~45%. Over very long periods, we expect a 50-50 track record. We believe inflation swaps can be very effective but, like other hedging tools, must be employed selectively when risks are elevated.

Conclusion

TIFF's approach to managing against inflation reflects these real-world observations. TIFF has largely eschewed gold as well as liquid real estate and real assets, and while we do not rule out private real estate and real assets as attractive investments *per se*, we have not deployed illiquid capacity to them for the purpose of inflation hedging, keeping the illiquid allocation focused on private equity. We will periodically employ the strategies supported by our observations:

- We may add passive broad **commodity** baskets, as well as maintain long-term investments in active equity managers who themselves will take on commodity exposure (e.g. in the metals and mining industry)
- We may shorten the portfolio's **duration**

- We may employ **inflation swaps**, either directly or in the form of short-term TIPS, which are effectively an inflation swap combined with a duration-reducing short-term treasury note

A common theme is that these hedges are not effective as “set and forget” permanent allocations; rather they must be managed and deployed periodically with an eye towards current inflation risks. TIFF implements these strategies for its clients selectively when warranted based on real time pricing and data around inflation expectations.

We find inflation hedging as challenging as does the rest of the investment world. Ultimately, we believe the best defense is a good offense: to maintain focus on generating long-term excess real return via an actively managed, equity-oriented portfolio with a prudent private investment allocation. We believe that running up the score with this approach, combined with some modest, carefully employed hedging, gives our clients the best long-term protection against inflation.

The materials are being provided for informational purposes only and constitute neither an offer to sell nor a solicitation of an offer to buy securities. These materials also do not constitute an offer or advertisement of TIFF’s investment advisory services or investment, legal or tax advice. Opinions expressed herein are those of TIFF and are not a recommendation to buy or sell any securities.

These materials may contain forward-looking statements relating to future events. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue,” the negative of such terms or other comparable terminology. Although TIFF believes the expectations reflected in the forward-looking statements are reasonable, future results cannot be guaranteed.

* Why 40 years? Beyond that time, the forms of inflation hedges that typical E&F investors can practically access were much less available, and data for them is sparse. For instance, TIPS were only introduced in 1997. More importantly, we believe the response of the economy and policy makers to inflation is meaningfully different since the devastating inflation of the 1970s and the massive response of the Volcker Fed wound down in the early 1980s.

** The inflation swap is equivalent to a position owning a TIPS and selling short a nominal treasury of exactly equal duration. The swap exists as a liquid instrument because of the introduction of TIPS in 1997.

Footnotes

1. US CPI Urban Consumers SA YoY as of December 31, 2024. Bloomberg.
2. S&P 500 Total Return Index as of December 31, 2024. Bloomberg.
3. Bloomberg Buyout Private Equity Index and Bloomberg Venture Capital Index as of December 31, 2024. Bloomberg.
4. Bloomberg US Aggregate Total Return Value Unhedged USD as of December 31, 2024. Bloomberg.
5. Bloomberg Commodity Index Total Return as of December 31, 2024. Bloomberg.
6. Bloomberg Gold Subindex Total Return as of December 31, 2024. Bloomberg.
7. Dow Jones Equity REIT Total Return Index as of December 31, 2024. Bloomberg.
8. MSCI World Infrastructure Net Total Return USD Index as of December 31, 2024. Bloomberg.
9. Bloomberg US Treasury Inflation-Linked Bond Index as of December 31, 2024. Bloomberg.
10. Bloomberg Short Treasury: 1-3 Months Total Return Index Unhedged as of December 31, 2024. Bloomberg.
11. USD Inflation Swap Zero Coupon 1 Year as of December 31, 2024. Bloomberg.

TIFF Investment Management



March 27, 2025

Copyright © 2026 TIFF Advisory Services, LLC. All rights reserved. May not be reproduced or distributed without permission.

TIFF 35TH
INVESTMENT MANAGEMENT
35TH ANNIVERSARY

How Endowments and Foundations Can Manage Inflation Risk

Executive Summary

- Hedging inflation in endowment and foundation portfolios is challenging because many hedging instruments have proven largely ineffective for two reasons:
    1. Low reliability: they do not reliably respond to inflation in the way theory suggests.
    2. High opportunity cost: they supplant productive core portfolio allocations and underperform when inflation is benign.
- Many "classic" hedging allocations such as real estate, real assets, and gold fall in this camp, suffering from unreliability and/or high net cost.
- Other strategies, including portfolio duration management and inflation swap overlays, have shown efficacy with carefully managed implementation.

The Challenge of Hedging Inflation

Of all the risks faced by endowment and foundation (E&F) investors, inflation is among the most challenging to hedge. Over time an actively managed portfolio consistently focused on equities, taking prudent advantage of private investments and appropriately diversified, has the best chance of delivering a robust real return over inflation. However, as we've been reminded over the last few years, spikes in inflation can make this goal harder to achieve. An inflation hedging allocation seeks to mitigate these periodic challenges.

The theory is straightforward – two types of assets should work as hedges:

1. Those with intrinsic value that will make their prices grow with inflation. For most portfolios, the investable version of such assets is commodities, including gold, and some commodity-like real assets such as timber.
2. Those with the ability to increase their cash yields in line with inflation. These assets include rent-generating real estate, infrastructure real assets such as toll roads or utilities, and inflation-indexed securities such as the US Treasury's TIPS.

Of course, the reality is anything but straightforward for two basic reasons. First, the economy hardly sits by passively when inflation emerges (or recedes) – consumers, producers, and government all react, impacting demand, supply, interest rates, and fiscal policy in ways that can overwhelm the theoretical responses of inflation hedges, making them **less reliable**. Second, inflation hedges have meaningful **opportunity cost** as they generally underperform when inflation is benign and also supplant part of the core elements of an investment portfolio, costs which can outweigh their benefits.

Which Classic Strategies Have Worked?

So, if inflation hedges are unreliable and costly, how does one decide which (if any) to employ? One approach is to assess reliability and opportunity cost practically by modeling an investable hedging strategy and observing whether it would have added value to the type of portfolio E&Fs actually employ. Let us first look at the impact of the classic hedging strategies mentioned above: commodities, including gold; real estate and real assets; and TIPS. We focus on practical liquid implementations that i) are accessible to typical E&Fs and ii) can be added to or removed from a portfolio as inflation risks warrant.

We look at rolling 1-year periods, both inflationary and non-inflationary, during the past 40 years*. We choose 1-year periods because the response of hedges to inflation[1] can take time, and shorter periods, such as a quarter-year, may not show a relationship, while longer multi-year periods often incorporate both an increase and subsequent decrease in inflation, again muddying the relationship. For each asset, first, we check reliability by observing the correlation of returns with inflation – is there evidence that the asset responds to inflation as hoped?

If there is a meaningful correlation, we will then check the cost/benefit: the excess return generated by the hedged portfolio vs the unhedged portfolio. To assess this cost/benefit correctly, the core portfolio must be representative – what core investment do we forgo and replace with a hedge? E&Fs are endlessly diverse in many dimensions, but at a high level share a fundamental investment goal: **funding** their missions **reliably** and **effectively** over the very **long term**. Parsing this goal leads to common requirements for their portfolios:

- **Funding** requires ready liquidity for distributions, while their **long-term** horizon often permits prudent but meaningful high-potential illiquid private investment.
- Continued **effectiveness** requires, at a minimum, growth with inflation net of distributions, while **reliability** requires volatility management via diversification.

To achieve these requirements, a typical TIFF client portfolio might have an illiquid budget of 10-35%, with the balance in liquid assets, and about 2/3rds of assets in growth-driving equities with the balance in volatility-reducing diversifying investments. For this exercise, we

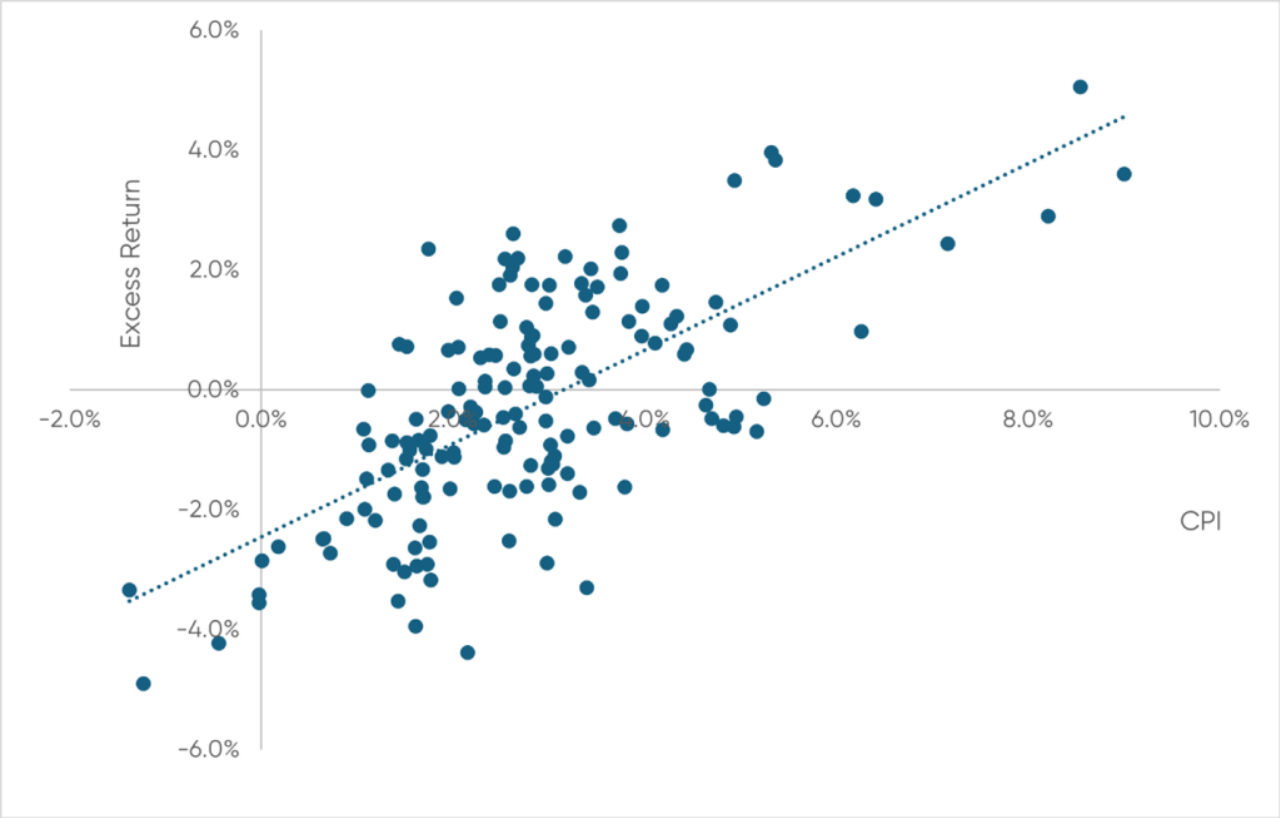
assume a core portfolio of 45% liquid equity[2], 20% private equity[3], and 35% fixed income[4].

Commodities and gold

A broad basket of commodities[5] has a correlation of about 0.64 over this period, indicating that statistically about 40% of its return is explained by inflation and that it has some promise as an inflation hedge. In contrast, gold[6], perhaps the most "classic" inflation hedging instrument, has a correlation of approximately zero. While there is little doubt that gold has some inherent inflation hedging power, this inflation response has generally been overwhelmed by all the other market forces driving its value. We do not rule out gold as a hedge but cannot call it reliable.

Having established that commodities have some reliability, we test adding commodities to the portfolio. Commodities are volatile but have very little correlation with equities, so they replace part of the core portfolio's non-equity diversifying allocation, 10% of it for our test.

Commodities Hedged Portfolio Annual Excess Return vs Annual CPI



We observe the high volatility and limited reliability of the hedge, particularly in years when inflation is not extreme: while about 40% of commodity return is explained by inflation, 60% is due to market forces unrelated to inflation. However, in the most inflationary (and

deflationary) years the relationship between commodities and inflation is more apparent. Across all observed periods, the commodity hedge generates approximately 0.75% additional return for each 1% rise in inflation—a significant contribution when endowments and foundations typically target a 5% real return. Commodities do not make sense to us as a permanent hedging allocation, but they can be valuable if selectively employed when inflation risks are emerging.

Real estate and real assets

Both liquid real estate[7] and liquid real assets[8] have correlations with inflation of about 0.1, indicating that inflation explains almost none of their returns. Some of their unreliability stems from factors noted above, such as the fact that in a dynamic economy, they may be unable to increase rents and other cash flows in line with inflation to the extent theory suggests. But the bigger factor degrading their hedging power is interest rate sensitivity. Real estate and real assets are inherently illiquid, but they are made liquid and readily investable via securitization in real estate investment trusts (REITs) and similar real asset structures. These structures are companies that borrow (typically 50% of assets or more) to grow and achieve equity-like returns and are negatively impacted by the rising rates that generally accompany inflation.

TIPS

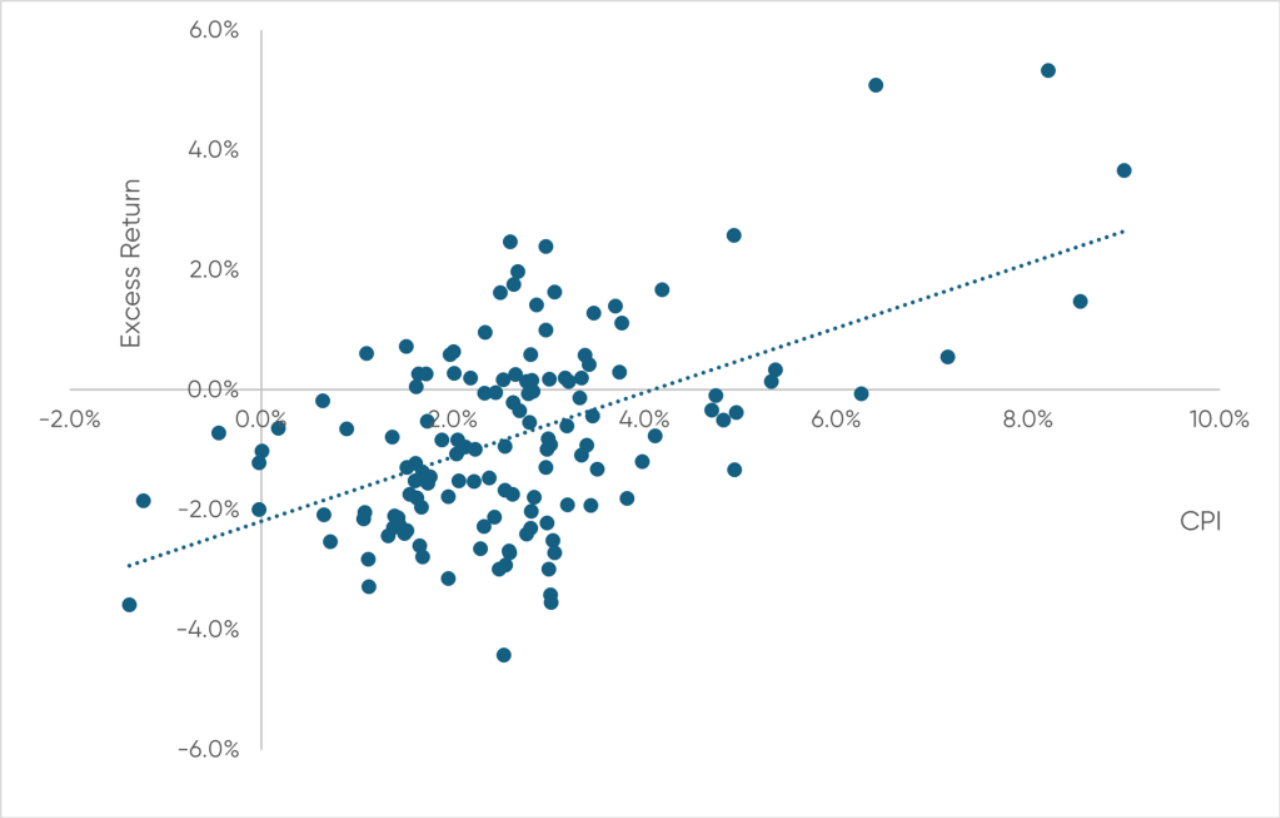
A broad TIPS index[9] has a correlation of approximately zero. This observation seems counterintuitive for an instrument indexed to inflation, but again, the reason is interest rate sensitivity. TIPS are bonds with duration, and on average their inflation indexing benefit is offset by their sensitivity to rising rates during emerging inflation.

What Other Strategies Can Help?

Short Duration

Since rising rates often accompany inflation, one approach could be simply to reduce the interest rate sensitivity (duration) of the portfolio. We model this strategy by exchanging longer-duration diversifying assets for cash-like very short-duration treasuries[10]:

Duration Hedged Portfolio Annual Excess Return vs Annual CPI



Similar to the commodity hedge, there is much volatility in most years as the return of interest rate exposure is, in general, not highly correlated with inflation; however, the relationship is again clearer in more extreme inflation regimes. Reducing portfolio duration when inflation-driven interest rate increases are anticipated clearly makes sense, but it's equally important to increase duration again ahead of interest rate reductions. The cost/benefit is moderate on average, as even if replacing the full 35% longer-duration allocation with cash (illustrated in the plot above), the portfolio's return increases by 0.5% for every 1% increase in inflation. Similar to commodities, shortening portfolio duration makes sense as an inflation hedge when applied selectively when risks are disproportionately towards higher inflation and rates.

Illiquid Real Estate / Real Assets

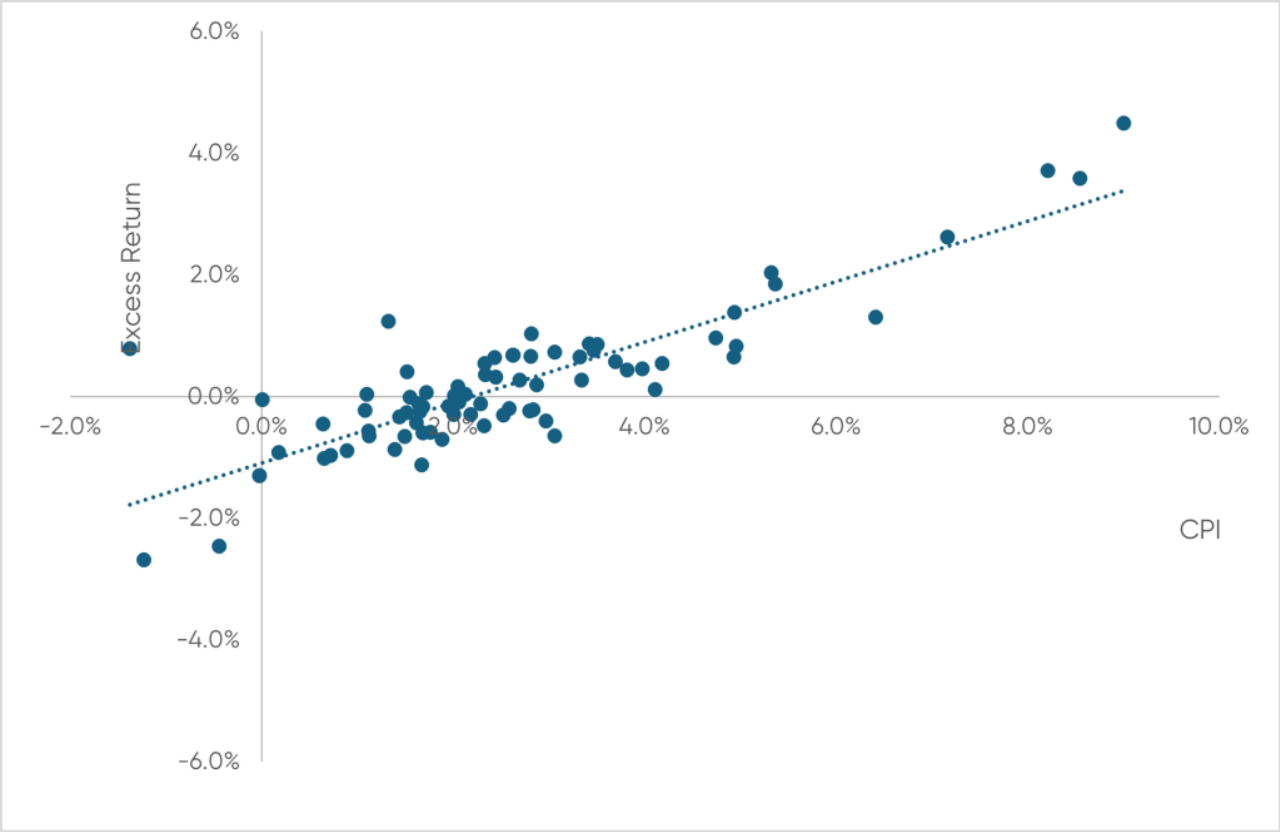
Another possibility is to replace some of the core portfolio's private equity allocation with private real estate or real assets. In illiquid form, these assets can be held directly without leverage and, therefore, with much less interest rate sensitivity. While private asset data is too sparse for the statistical analysis we have done here for liquid assets, we do believe that directly held real estate and assets demonstrate reliability against inflation. However, we also believe that for the typical endowment portfolio their opportunity cost is too great. The upside potential of private equity is too high to forgo for inflation hedging when there is a limited illiquid asset budget available. And unlike liquid hedges, an effective private asset hedge cannot be employed periodically but instead must be committed to and left in place

through complete inflation cycles. Private asset hedges can make sense for the largest endowments with very substantial illiquid allocations, particularly those with ancillary needs for real estate investment (such as universities and hospitals) and the very large scale necessary to consistently outperform in these sectors.

Inflation Swaps

An inflation swap is a derivative contract in which the payer pays an agreed-upon fixed rate at the outset of the swap while the receiver pays a rate equal to the inflation that is actually experienced during the swap's duration. The fixed-payer rate is thus effectively the prevailing breakeven inflation rate for the period. If realized inflation proves higher than this breakeven, the payer receives the difference, while if it comes in lower, the payer pays the difference. This instrument is purpose-built for inflation hedging and has several advantages. First, it is liquid and can be put on and taken off on a daily basis. Second, it has no direct interest-rate exposure, not only to rate duration but also to short-term rates. Third, while this market breakeven rate changes continuously, it is not very volatile (~2% annual volatility over the past ~25 years that this swap has been implementable**) compared to the core portfolio or the other hedges described above, which all have annual volatilities in the teens. This low volatility means an inflation swap can be added to the portfolio in large notional size without increasing overall portfolio risk. For illustration, consider 1-year swaps[11], which pay out based on realized inflation over 12 months:

Inflation Swap Hedged Portfolio Annual Excess Return vs Annual CPI



We observe very high correlation (~0.9) with inflation as hoped. At a size consistent with the swap's very low volatility (~75% of portfolio NAV), the portfolio, on average, gains a respectable ~0.65% for every 1% increase in in inflation. However, the swap is not a panacea because, as expected of any liquid market hedge, it is, over time, fairly valued: when inflation risks are high, the price of insurance goes up. During this period, these swaps post a gain in ~55% of rolling years and a loss in the other ~45%. Over very long periods, we expect a 50-50 track record. We believe inflation swaps can be very effective but, like other hedging tools, must be employed selectively when risks are elevated.

Conclusion

TIFF's approach to managing against inflation reflects these real-world observations. TIFF has largely eschewed gold as well as liquid real estate and real assets, and while we do not rule out private real estate and real assets as attractive investments *per se*, we have not deployed illiquid capacity to them for the purpose of inflation hedging, keeping the illiquid allocation focused on private equity. We will periodically employ the strategies supported by our observations:

- We may add passive broad **commodity** baskets, as well as maintain long-term investments in active equity managers who themselves will take on commodity exposure (e.g. in the metals and mining industry)
- We may shorten the portfolio's **duration**

- We may employ **inflation swaps**, either directly or in the form of short-term TIPS, which are effectively an inflation swap combined with a duration-reducing short-term treasury note

A common theme is that these hedges are not effective as “set and forget” permanent allocations; rather they must be managed and deployed periodically with an eye towards current inflation risks. TIFF implements these strategies for its clients selectively when warranted based on real time pricing and data around inflation expectations.

We find inflation hedging as challenging as does the rest of the investment world. Ultimately, we believe the best defense is a good offense: to maintain focus on generating long-term excess real return via an actively managed, equity-oriented portfolio with a prudent private investment allocation. We believe that running up the score with this approach, combined with some modest, carefully employed hedging, gives our clients the best long-term protection against inflation.

The materials are being provided for informational purposes only and constitute neither an offer to sell nor a solicitation of an offer to buy securities. These materials also do not constitute an offer or advertisement of TIFF’s investment advisory services or investment, legal or tax advice. Opinions expressed herein are those of TIFF and are not a recommendation to buy or sell any securities.

These materials may contain forward-looking statements relating to future events. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue,” the negative of such terms or other comparable terminology. Although TIFF believes the expectations reflected in the forward-looking statements are reasonable, future results cannot be guaranteed.

* Why 40 years? Beyond that time, the forms of inflation hedges that typical E&F investors can practically access were much less available, and data for them is sparse. For instance, TIPS were only introduced in 1997. More importantly, we believe the response of the economy and policy makers to inflation is meaningfully different since the devastating inflation of the 1970s and the massive response of the Volcker Fed wound down in the early 1980s.

** The inflation swap is equivalent to a position owning a TIPS and selling short a nominal treasury of exactly equal duration. The swap exists as a liquid instrument because of the introduction of TIPS in 1997.

Footnotes

1. US CPI Urban Consumers SA YoY as of December 31, 2024. Bloomberg.
2. S&P 500 Total Return Index as of December 31, 2024. Bloomberg.
3. Bloomberg Buyout Private Equity Index and Bloomberg Venture Capital Index as of December 31, 2024. Bloomberg.
4. Bloomberg US Aggregate Total Return Value Unhedged USD as of December 31, 2024. Bloomberg.
5. Bloomberg Commodity Index Total Return as of December 31, 2024. Bloomberg.
6. Bloomberg Gold Subindex Total Return as of December 31, 2024. Bloomberg.
7. Dow Jones Equity REIT Total Return Index as of December 31, 2024. Bloomberg.
8. MSCI World Infrastructure Net Total Return USD Index as of December 31, 2024. Bloomberg.
9. Bloomberg US Treasury Inflation-Linked Bond Index as of December 31, 2024. Bloomberg.
10. Bloomberg Short Treasury: 1-3 Months Total Return Index Unhedged as of December 31, 2024. Bloomberg.
11. USD Inflation Swap Zero Coupon 1 Year as of December 31, 2024. Bloomberg.

TIFF Investment Management



March 27, 2025

Copyright © 2026 TIFF Advisory Services, LLC. All rights reserved. May not be reproduced or distributed without permission.

TIFF 35TH
INVESTMENT MANAGEMENT
35TH ANNIVERSARY

How Endowments and Foundations Can Manage Inflation Risk

Executive Summary

- Hedging inflation in endowment and foundation portfolios is challenging because many hedging instruments have proven largely ineffective for two reasons:
    1. Low reliability: they do not reliably respond to inflation in the way theory suggests.
    2. High opportunity cost: they supplant productive core portfolio allocations and underperform when inflation is benign.
- Many "classic" hedging allocations such as real estate, real assets, and gold fall in this camp, suffering from unreliability and/or high net cost.
- Other strategies, including portfolio duration management and inflation swap overlays, have shown efficacy with carefully managed implementation.

The Challenge of Hedging Inflation

Of all the risks faced by endowment and foundation (E&F) investors, inflation is among the most challenging to hedge. Over time an actively managed portfolio consistently focused on equities, taking prudent advantage of private investments and appropriately diversified, has the best chance of delivering a robust real return over inflation. However, as we've been reminded over the last few years, spikes in inflation can make this goal harder to achieve. An inflation hedging allocation seeks to mitigate these periodic challenges.

The theory is straightforward – two types of assets should work as hedges:

1. Those with intrinsic value that will make their prices grow with inflation. For most portfolios, the investable version of such assets is commodities, including gold, and some commodity-like real assets such as timber.
2. Those with the ability to increase their cash yields in line with inflation. These assets include rent-generating real estate, infrastructure real assets such as toll roads or utilities, and inflation-indexed securities such as the US Treasury's TIPS.

Of course, the reality is anything but straightforward for two basic reasons. First, the economy hardly sits by passively when inflation emerges (or recedes) – consumers, producers, and government all react, impacting demand, supply, interest rates, and fiscal policy in ways that can overwhelm the theoretical responses of inflation hedges, making them **less reliable**. Second, inflation hedges have meaningful **opportunity cost** as they generally underperform when inflation is benign and also supplant part of the core elements of an investment portfolio, costs which can outweigh their benefits.

Which Classic Strategies Have Worked?

So, if inflation hedges are unreliable and costly, how does one decide which (if any) to employ? One approach is to assess reliability and opportunity cost practically by modeling an investable hedging strategy and observing whether it would have added value to the type of portfolio E&Fs actually employ. Let us first look at the impact of the classic hedging strategies mentioned above: commodities, including gold; real estate and real assets; and TIPS. We focus on practical liquid implementations that i) are accessible to typical E&Fs and ii) can be added to or removed from a portfolio as inflation risks warrant.

We look at rolling 1-year periods, both inflationary and non-inflationary, during the past 40 years*. We choose 1-year periods because the response of hedges to inflation[1] can take time, and shorter periods, such as a quarter-year, may not show a relationship, while longer multi-year periods often incorporate both an increase and subsequent decrease in inflation, again muddying the relationship. For each asset, first, we check reliability by observing the correlation of returns with inflation – is there evidence that the asset responds to inflation as hoped?

If there is a meaningful correlation, we will then check the cost/benefit: the excess return generated by the hedged portfolio vs the unhedged portfolio. To assess this cost/benefit correctly, the core portfolio must be representative – what core investment do we forgo and replace with a hedge? E&Fs are endlessly diverse in many dimensions, but at a high level share a fundamental investment goal: **funding** their missions **reliably** and **effectively** over the very **long term**. Parsing this goal leads to common requirements for their portfolios:

- **Funding** requires ready liquidity for distributions, while their **long-term** horizon often permits prudent but meaningful high-potential illiquid private investment.
- Continued **effectiveness** requires, at a minimum, growth with inflation net of distributions, while **reliability** requires volatility management via diversification.

To achieve these requirements, a typical TIFF client portfolio might have an illiquid budget of 10-35%, with the balance in liquid assets, and about 2/3rds of assets in growth-driving equities with the balance in volatility-reducing diversifying investments. For this exercise, we

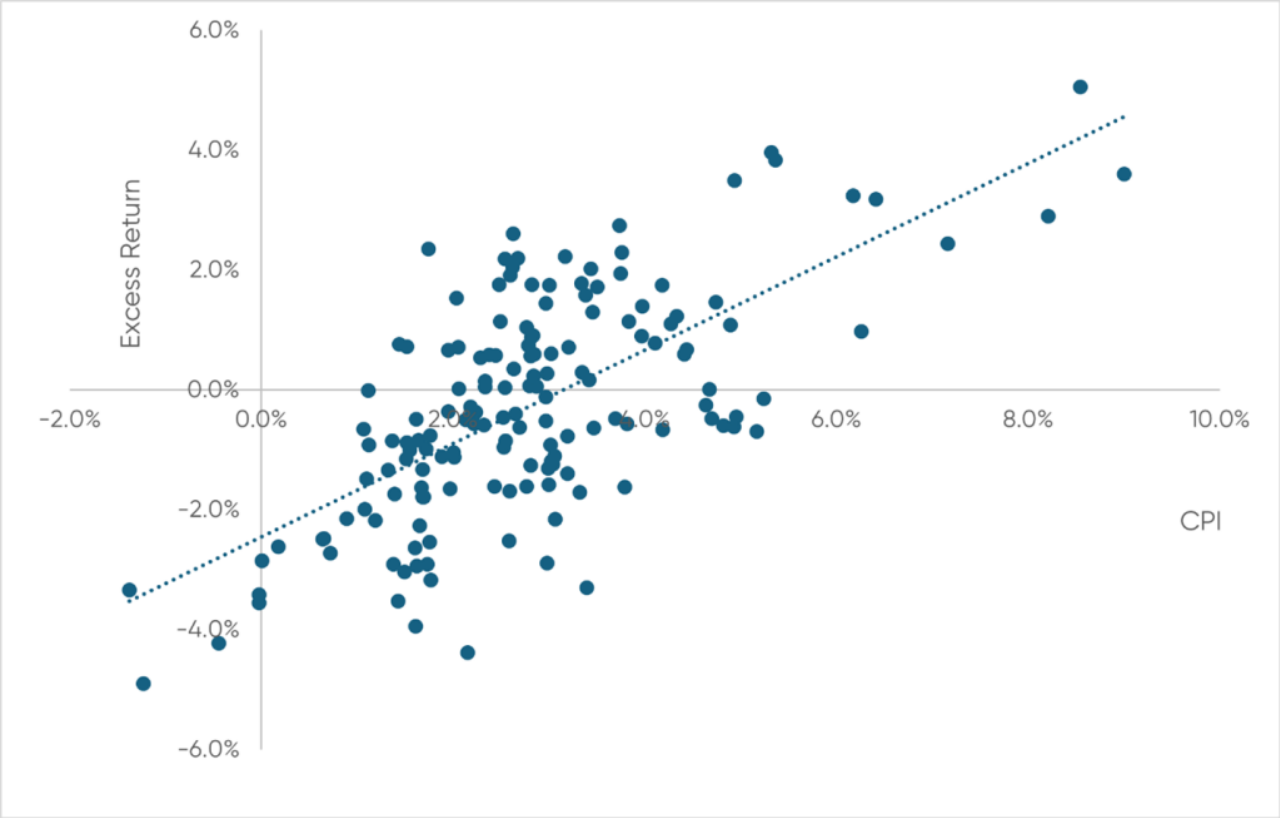
assume a core portfolio of 45% liquid equity[2], 20% private equity[3], and 35% fixed income[4].

Commodities and gold

A broad basket of commodities[5] has a correlation of about 0.64 over this period, indicating that statistically about 40% of its return is explained by inflation and that it has some promise as an inflation hedge. In contrast, gold[6], perhaps the most "classic" inflation hedging instrument, has a correlation of approximately zero. While there is little doubt that gold has some inherent inflation hedging power, this inflation response has generally been overwhelmed by all the other market forces driving its value. We do not rule out gold as a hedge but cannot call it reliable.

Having established that commodities have some reliability, we test adding commodities to the portfolio. Commodities are volatile but have very little correlation with equities, so they replace part of the core portfolio's non-equity diversifying allocation, 10% of it for our test.

Commodities Hedged Portfolio Annual Excess Return vs Annual CPI



We observe the high volatility and limited reliability of the hedge, particularly in years when inflation is not extreme: while about 40% of commodity return is explained by inflation, 60% is due to market forces unrelated to inflation. However, in the most inflationary (and

deflationary) years the relationship between commodities and inflation is more apparent. Across all observed periods, the commodity hedge generates approximately 0.75% additional return for each 1% rise in inflation—a significant contribution when endowments and foundations typically target a 5% real return. Commodities do not make sense to us as a permanent hedging allocation, but they can be valuable if selectively employed when inflation risks are emerging.

Real estate and real assets

Both liquid real estate[7] and liquid real assets[8] have correlations with inflation of about 0.1, indicating that inflation explains almost none of their returns. Some of their unreliability stems from factors noted above, such as the fact that in a dynamic economy, they may be unable to increase rents and other cash flows in line with inflation to the extent theory suggests. But the bigger factor degrading their hedging power is interest rate sensitivity. Real estate and real assets are inherently illiquid, but they are made liquid and readily investable via securitization in real estate investment trusts (REITs) and similar real asset structures. These structures are companies that borrow (typically 50% of assets or more) to grow and achieve equity-like returns and are negatively impacted by the rising rates that generally accompany inflation.

TIPS

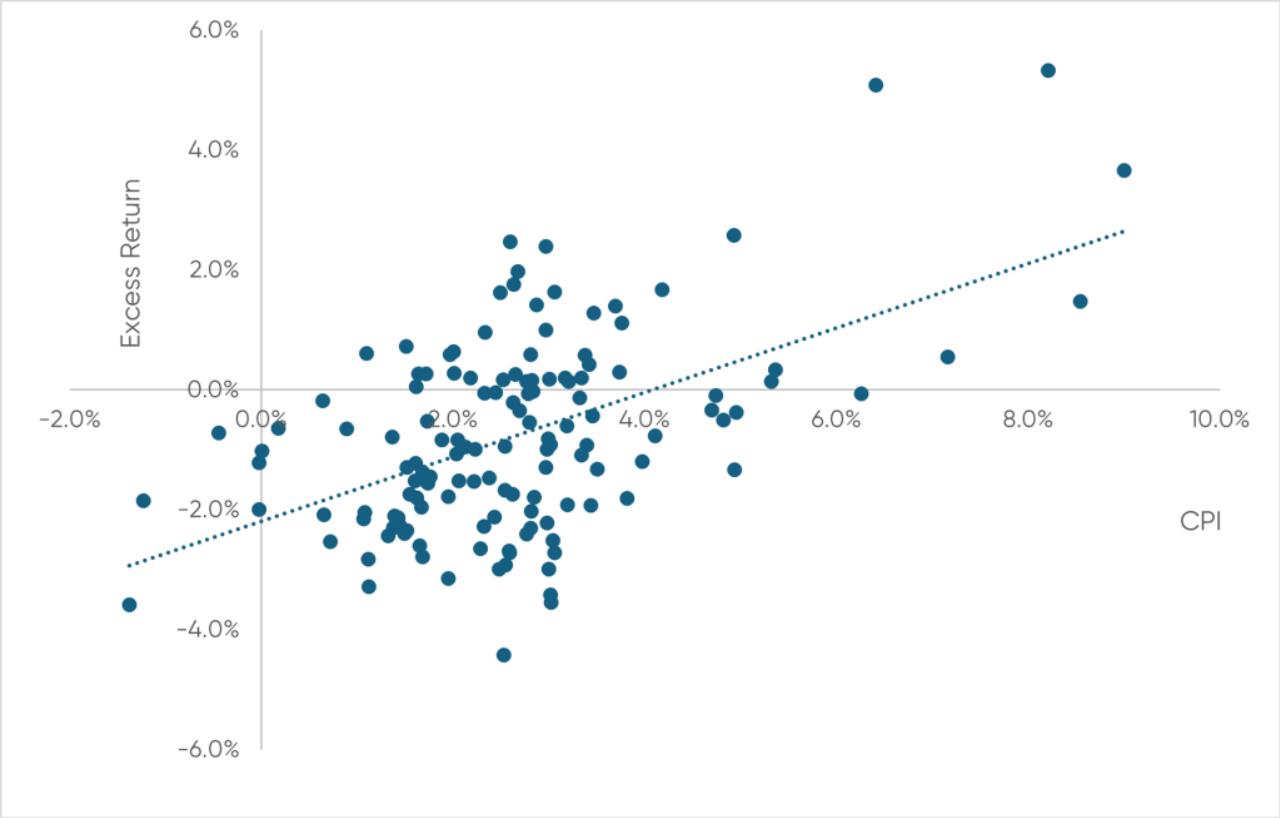
A broad TIPS index[9] has a correlation of approximately zero. This observation seems counterintuitive for an instrument indexed to inflation, but again, the reason is interest rate sensitivity. TIPS are bonds with duration, and on average their inflation indexing benefit is offset by their sensitivity to rising rates during emerging inflation.

What Other Strategies Can Help?

Short Duration

Since rising rates often accompany inflation, one approach could be simply to reduce the interest rate sensitivity (duration) of the portfolio. We model this strategy by exchanging longer-duration diversifying assets for cash-like very short-duration treasuries[10]:

Duration Hedged Portfolio Annual Excess Return vs Annual CPI



Similar to the commodity hedge, there is much volatility in most years as the return of interest rate exposure is, in general, not highly correlated with inflation; however, the relationship is again clearer in more extreme inflation regimes. Reducing portfolio duration when inflation-driven interest rate increases are anticipated clearly makes sense, but it's equally important to increase duration again ahead of interest rate reductions. The cost/benefit is moderate on average, as even if replacing the full 35% longer-duration allocation with cash (illustrated in the plot above), the portfolio's return increases by 0.5% for every 1% increase in inflation. Similar to commodities, shortening portfolio duration makes sense as an inflation hedge when applied selectively when risks are disproportionately towards higher inflation and rates.

Illiquid Real Estate / Real Assets

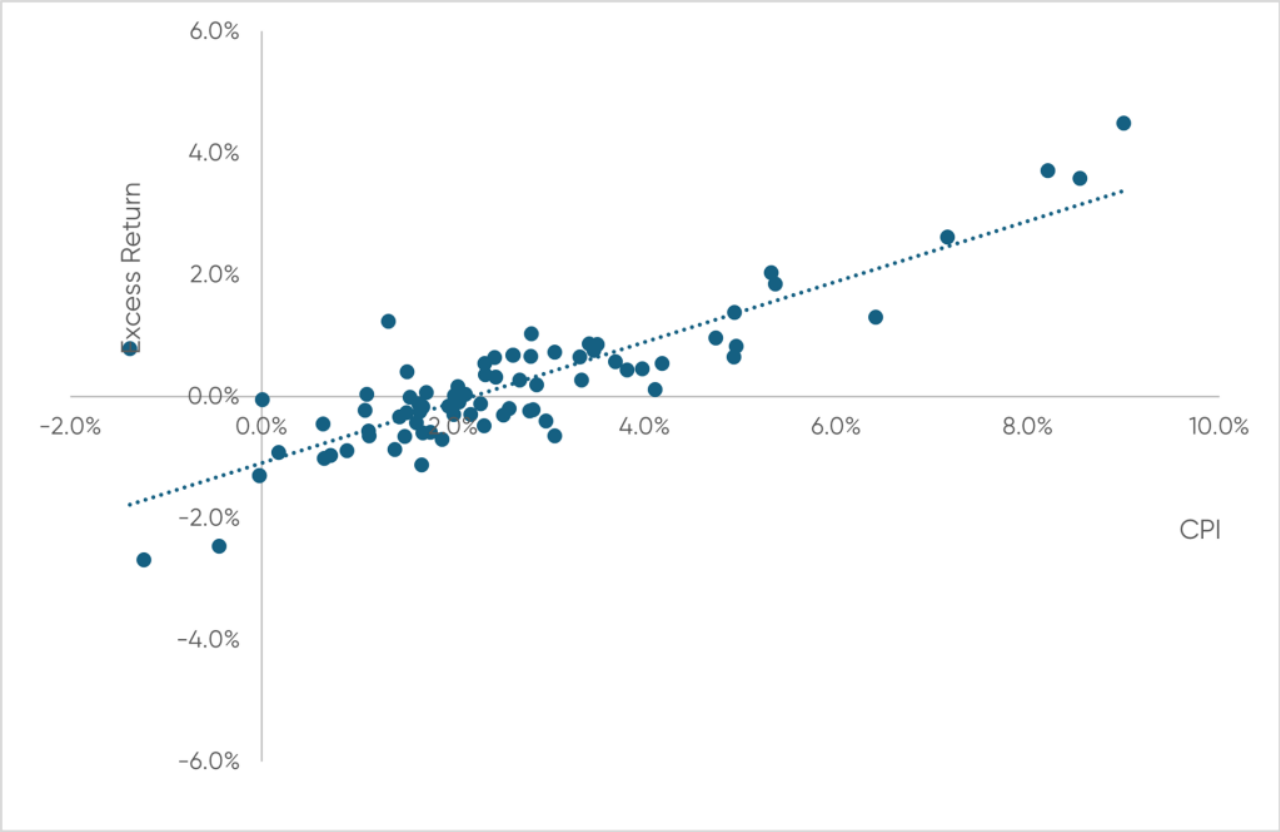
Another possibility is to replace some of the core portfolio's private equity allocation with private real estate or real assets. In illiquid form, these assets can be held directly without leverage and, therefore, with much less interest rate sensitivity. While private asset data is too sparse for the statistical analysis we have done here for liquid assets, we do believe that directly held real estate and assets demonstrate reliability against inflation. However, we also believe that for the typical endowment portfolio their opportunity cost is too great. The upside potential of private equity is too high to forgo for inflation hedging when there is a limited illiquid asset budget available. And unlike liquid hedges, an effective private asset hedge cannot be employed periodically but instead must be committed to and left in place

through complete inflation cycles. Private asset hedges can make sense for the largest endowments with very substantial illiquid allocations, particularly those with ancillary needs for real estate investment (such as universities and hospitals) and the very large scale necessary to consistently outperform in these sectors.

Inflation Swaps

An inflation swap is a derivative contract in which the payer pays an agreed-upon fixed rate at the outset of the swap while the receiver pays a rate equal to the inflation that is actually experienced during the swap's duration. The fixed-payer rate is thus effectively the prevailing breakeven inflation rate for the period. If realized inflation proves higher than this breakeven, the payer receives the difference, while if it comes in lower, the payer pays the difference. This instrument is purpose-built for inflation hedging and has several advantages. First, it is liquid and can be put on and taken off on a daily basis. Second, it has no direct interest-rate exposure, not only to rate duration but also to short-term rates. Third, while this market breakeven rate changes continuously, it is not very volatile (~2% annual volatility over the past ~25 years that this swap has been implementable**) compared to the core portfolio or the other hedges described above, which all have annual volatilities in the teens. This low volatility means an inflation swap can be added to the portfolio in large notional size without increasing overall portfolio risk. For illustration, consider 1-year swaps[11], which pay out based on realized inflation over 12 months:

Inflation Swap Hedged Portfolio Annual Excess Return vs Annual CPI



We observe very high correlation (~0.9) with inflation as hoped. At a size consistent with the swap's very low volatility (~75% of portfolio NAV), the portfolio, on average, gains a respectable ~0.65% for every 1% increase in in inflation. However, the swap is not a panacea because, as expected of any liquid market hedge, it is, over time, fairly valued: when inflation risks are high, the price of insurance goes up. During this period, these swaps post a gain in ~55% of rolling years and a loss in the other ~45%. Over very long periods, we expect a 50-50 track record. We believe inflation swaps can be very effective but, like other hedging tools, must be employed selectively when risks are elevated.

Conclusion

TIFF's approach to managing against inflation reflects these real-world observations. TIFF has largely eschewed gold as well as liquid real estate and real assets, and while we do not rule out private real estate and real assets as attractive investments *per se*, we have not deployed illiquid capacity to them for the purpose of inflation hedging, keeping the illiquid allocation focused on private equity. We will periodically employ the strategies supported by our observations:

- We may add passive broad **commodity** baskets, as well as maintain long-term investments in active equity managers who themselves will take on commodity exposure (e.g. in the metals and mining industry)
- We may shorten the portfolio's **duration**

- We may employ **inflation swaps**, either directly or in the form of short-term TIPS, which are effectively an inflation swap combined with a duration-reducing short-term treasury note

A common theme is that these hedges are not effective as “set and forget” permanent allocations; rather they must be managed and deployed periodically with an eye towards current inflation risks. TIFF implements these strategies for its clients selectively when warranted based on real time pricing and data around inflation expectations.

We find inflation hedging as challenging as does the rest of the investment world. Ultimately, we believe the best defense is a good offense: to maintain focus on generating long-term excess real return via an actively managed, equity-oriented portfolio with a prudent private investment allocation. We believe that running up the score with this approach, combined with some modest, carefully employed hedging, gives our clients the best long-term protection against inflation.

The materials are being provided for informational purposes only and constitute neither an offer to sell nor a solicitation of an offer to buy securities. These materials also do not constitute an offer or advertisement of TIFF’s investment advisory services or investment, legal or tax advice. Opinions expressed herein are those of TIFF and are not a recommendation to buy or sell any securities.

These materials may contain forward-looking statements relating to future events. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue,” the negative of such terms or other comparable terminology. Although TIFF believes the expectations reflected in the forward-looking statements are reasonable, future results cannot be guaranteed.

* Why 40 years? Beyond that time, the forms of inflation hedges that typical E&F investors can practically access were much less available, and data for them is sparse. For instance, TIPS were only introduced in 1997. More importantly, we believe the response of the economy and policy makers to inflation is meaningfully different since the devastating inflation of the 1970s and the massive response of the Volcker Fed wound down in the early 1980s.

** The inflation swap is equivalent to a position owning a TIPS and selling short a nominal treasury of exactly equal duration. The swap exists as a liquid instrument because of the introduction of TIPS in 1997.

Footnotes

1. US CPI Urban Consumers SA YoY as of December 31, 2024. Bloomberg.
2. S&P 500 Total Return Index as of December 31, 2024. Bloomberg.
3. Bloomberg Buyout Private Equity Index and Bloomberg Venture Capital Index as of December 31, 2024. Bloomberg.
4. Bloomberg US Aggregate Total Return Value Unhedged USD as of December 31, 2024. Bloomberg.
5. Bloomberg Commodity Index Total Return as of December 31, 2024. Bloomberg.
6. Bloomberg Gold Subindex Total Return as of December 31, 2024. Bloomberg.
7. Dow Jones Equity REIT Total Return Index as of December 31, 2024. Bloomberg.
8. MSCI World Infrastructure Net Total Return USD Index as of December 31, 2024. Bloomberg.
9. Bloomberg US Treasury Inflation-Linked Bond Index as of December 31, 2024. Bloomberg.
10. Bloomberg Short Treasury: 1-3 Months Total Return Index Unhedged as of December 31, 2024. Bloomberg.
11. USD Inflation Swap Zero Coupon 1 Year as of December 31, 2024. Bloomberg.

TIFF Investment Management



March 27, 2025

Copyright © 2026 TIFF Advisory Services, LLC. All rights reserved. May not be reproduced or distributed without permission.

TIFF 35TH
INVESTMENT MANAGEMENT
35TH ANNIVERSARY

How Endowments and Foundations Can Manage Inflation Risk

Executive Summary

- Hedging inflation in endowment and foundation portfolios is challenging because many hedging instruments have proven largely ineffective for two reasons:
    1. Low reliability: they do not reliably respond to inflation in the way theory suggests.
    2. High opportunity cost: they supplant productive core portfolio allocations and underperform when inflation is benign.
- Many "classic" hedging allocations such as real estate, real assets, and gold fall in this camp, suffering from unreliability and/or high net cost.
- Other strategies, including portfolio duration management and inflation swap overlays, have shown efficacy with carefully managed implementation.

The Challenge of Hedging Inflation

Of all the risks faced by endowment and foundation (E&F) investors, inflation is among the most challenging to hedge. Over time an actively managed portfolio consistently focused on equities, taking prudent advantage of private investments and appropriately diversified, has the best chance of delivering a robust real return over inflation. However, as we've been reminded over the last few years, spikes in inflation can make this goal harder to achieve. An inflation hedging allocation seeks to mitigate these periodic challenges.

The theory is straightforward – two types of assets should work as hedges:

1. Those with intrinsic value that will make their prices grow with inflation. For most portfolios, the investable version of such assets is commodities, including gold, and some commodity-like real assets such as timber.
2. Those with the ability to increase their cash yields in line with inflation. These assets include rent-generating real estate, infrastructure real assets such as toll roads or utilities, and inflation-indexed securities such as the US Treasury's TIPS.

Of course, the reality is anything but straightforward for two basic reasons. First, the economy hardly sits by passively when inflation emerges (or recedes) – consumers, producers, and government all react, impacting demand, supply, interest rates, and fiscal policy in ways that can overwhelm the theoretical responses of inflation hedges, making them **less reliable**. Second, inflation hedges have meaningful **opportunity cost** as they generally underperform when inflation is benign and also supplant part of the core elements of an investment portfolio, costs which can outweigh their benefits.

Which Classic Strategies Have Worked?

So, if inflation hedges are unreliable and costly, how does one decide which (if any) to employ? One approach is to assess reliability and opportunity cost practically by modeling an investable hedging strategy and observing whether it would have added value to the type of portfolio E&Fs actually employ. Let us first look at the impact of the classic hedging strategies mentioned above: commodities, including gold; real estate and real assets; and TIPS. We focus on practical liquid implementations that i) are accessible to typical E&Fs and ii) can be added to or removed from a portfolio as inflation risks warrant.

We look at rolling 1-year periods, both inflationary and non-inflationary, during the past 40 years*. We choose 1-year periods because the response of hedges to inflation[1] can take time, and shorter periods, such as a quarter-year, may not show a relationship, while longer multi-year periods often incorporate both an increase and subsequent decrease in inflation, again muddying the relationship. For each asset, first, we check reliability by observing the correlation of returns with inflation – is there evidence that the asset responds to inflation as hoped?

If there is a meaningful correlation, we will then check the cost/benefit: the excess return generated by the hedged portfolio vs the unhedged portfolio. To assess this cost/benefit correctly, the core portfolio must be representative – what core investment do we forgo and replace with a hedge? E&Fs are endlessly diverse in many dimensions, but at a high level share a fundamental investment goal: **funding** their missions **reliably** and **effectively** over the very **long term**. Parsing this goal leads to common requirements for their portfolios:

- **Funding** requires ready liquidity for distributions, while their **long-term** horizon often permits prudent but meaningful high-potential illiquid private investment.
- Continued **effectiveness** requires, at a minimum, growth with inflation net of distributions, while **reliability** requires volatility management via diversification.

To achieve these requirements, a typical TIFF client portfolio might have an illiquid budget of 10-35%, with the balance in liquid assets, and about 2/3rds of assets in growth-driving equities with the balance in volatility-reducing diversifying investments. For this exercise, we

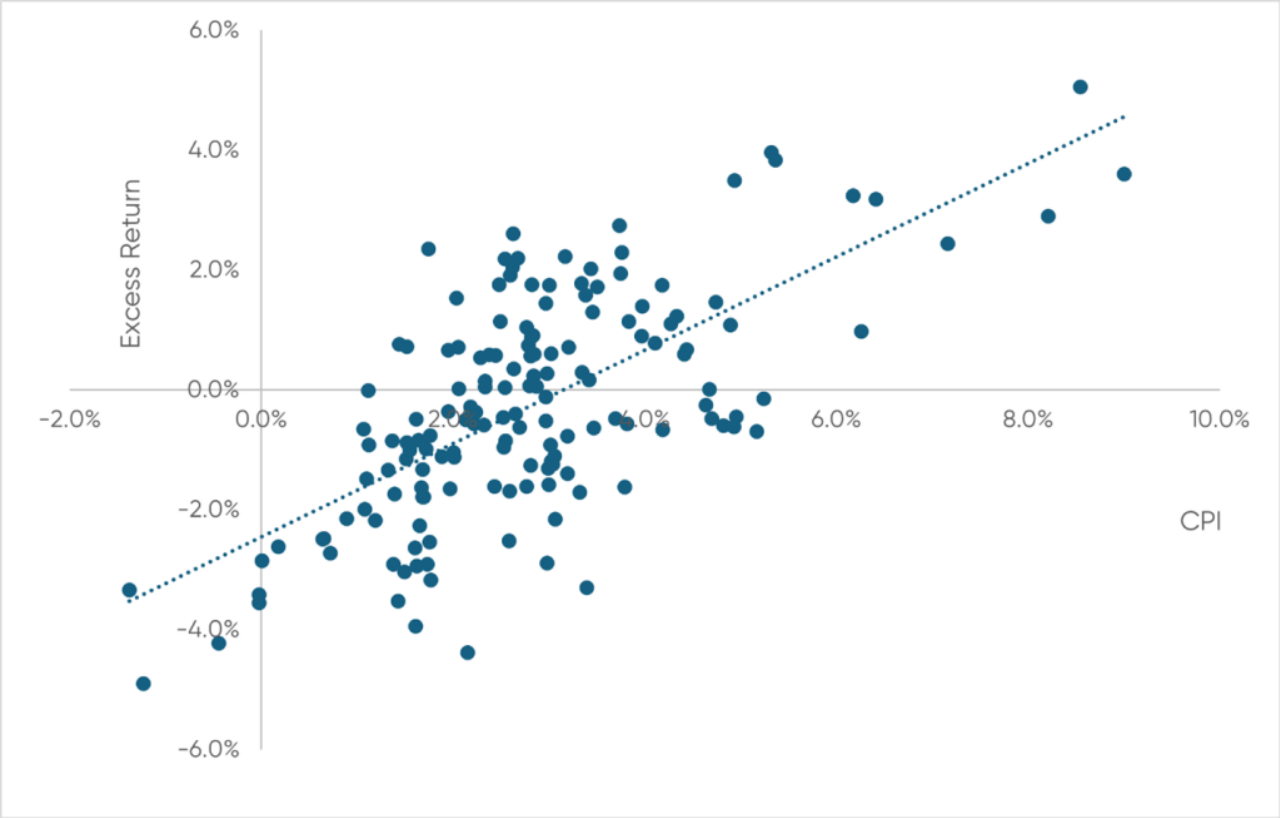
assume a core portfolio of 45% liquid equity[2], 20% private equity[3], and 35% fixed income[4].

Commodities and gold

A broad basket of commodities[5] has a correlation of about 0.64 over this period, indicating that statistically about 40% of its return is explained by inflation and that it has some promise as an inflation hedge. In contrast, gold[6], perhaps the most "classic" inflation hedging instrument, has a correlation of approximately zero. While there is little doubt that gold has some inherent inflation hedging power, this inflation response has generally been overwhelmed by all the other market forces driving its value. We do not rule out gold as a hedge but cannot call it reliable.

Having established that commodities have some reliability, we test adding commodities to the portfolio. Commodities are volatile but have very little correlation with equities, so they replace part of the core portfolio's non-equity diversifying allocation, 10% of it for our test.

Commodities Hedged Portfolio Annual Excess Return vs Annual CPI



We observe the high volatility and limited reliability of the hedge, particularly in years when inflation is not extreme: while about 40% of commodity return is explained by inflation, 60% is due to market forces unrelated to inflation. However, in the most inflationary (and

deflationary) years the relationship between commodities and inflation is more apparent. Across all observed periods, the commodity hedge generates approximately 0.75% additional return for each 1% rise in inflation—a significant contribution when endowments and foundations typically target a 5% real return. Commodities do not make sense to us as a permanent hedging allocation, but they can be valuable if selectively employed when inflation risks are emerging.

Real estate and real assets

Both liquid real estate[7] and liquid real assets[8] have correlations with inflation of about 0.1, indicating that inflation explains almost none of their returns. Some of their unreliability stems from factors noted above, such as the fact that in a dynamic economy, they may be unable to increase rents and other cash flows in line with inflation to the extent theory suggests. But the bigger factor degrading their hedging power is interest rate sensitivity. Real estate and real assets are inherently illiquid, but they are made liquid and readily investable via securitization in real estate investment trusts (REITs) and similar real asset structures. These structures are companies that borrow (typically 50% of assets or more) to grow and achieve equity-like returns and are negatively impacted by the rising rates that generally accompany inflation.

TIPS

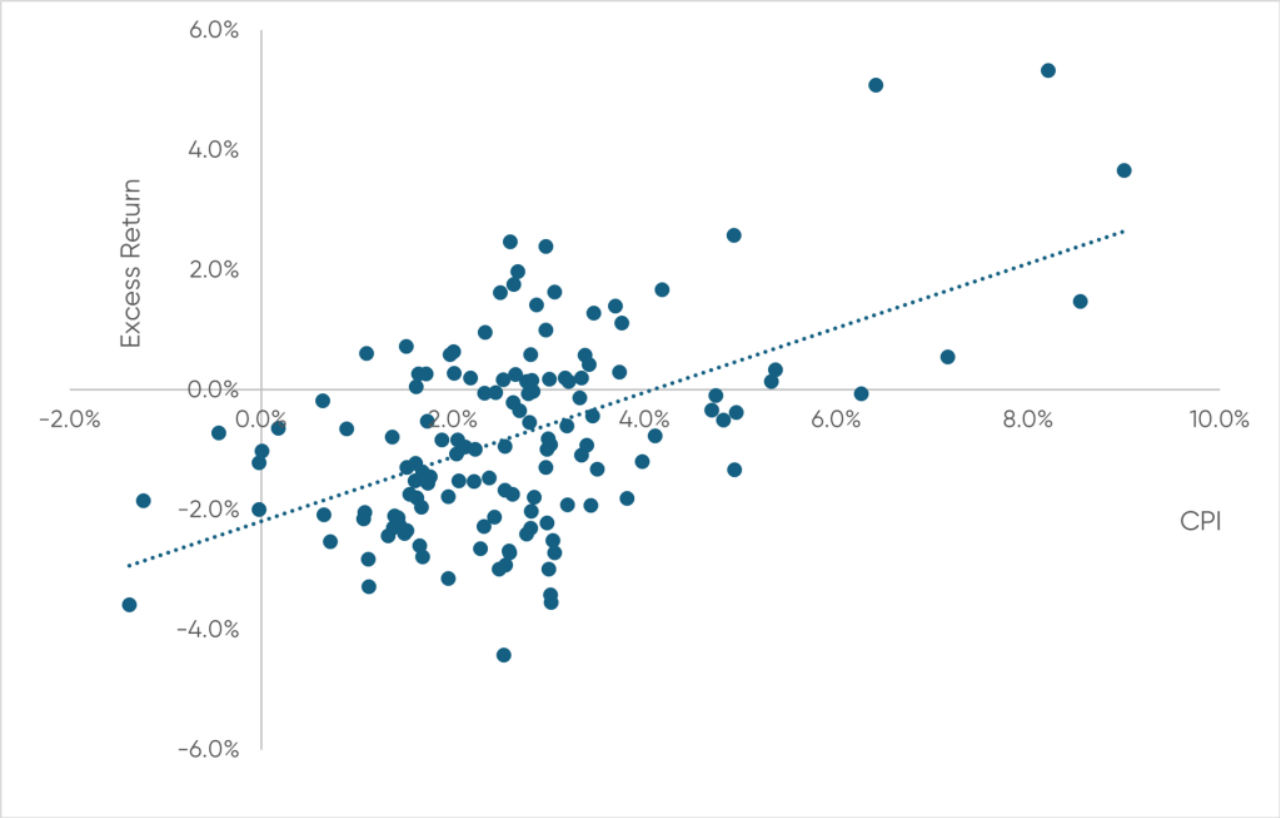
A broad TIPS index[9] has a correlation of approximately zero. This observation seems counterintuitive for an instrument indexed to inflation, but again, the reason is interest rate sensitivity. TIPS are bonds with duration, and on average their inflation indexing benefit is offset by their sensitivity to rising rates during emerging inflation.

What Other Strategies Can Help?

Short Duration

Since rising rates often accompany inflation, one approach could be simply to reduce the interest rate sensitivity (duration) of the portfolio. We model this strategy by exchanging longer-duration diversifying assets for cash-like very short-duration treasuries[10]:

Duration Hedged Portfolio Annual Excess Return vs Annual CPI



Similar to the commodity hedge, there is much volatility in most years as the return of interest rate exposure is, in general, not highly correlated with inflation; however, the relationship is again clearer in more extreme inflation regimes. Reducing portfolio duration when inflation-driven interest rate increases are anticipated clearly makes sense, but it's equally important to increase duration again ahead of interest rate reductions. The cost/benefit is moderate on average, as even if replacing the full 35% longer-duration allocation with cash (illustrated in the plot above), the portfolio's return increases by 0.5% for every 1% increase in inflation. Similar to commodities, shortening portfolio duration makes sense as an inflation hedge when applied selectively when risks are disproportionately towards higher inflation and rates.

Illiquid Real Estate / Real Assets

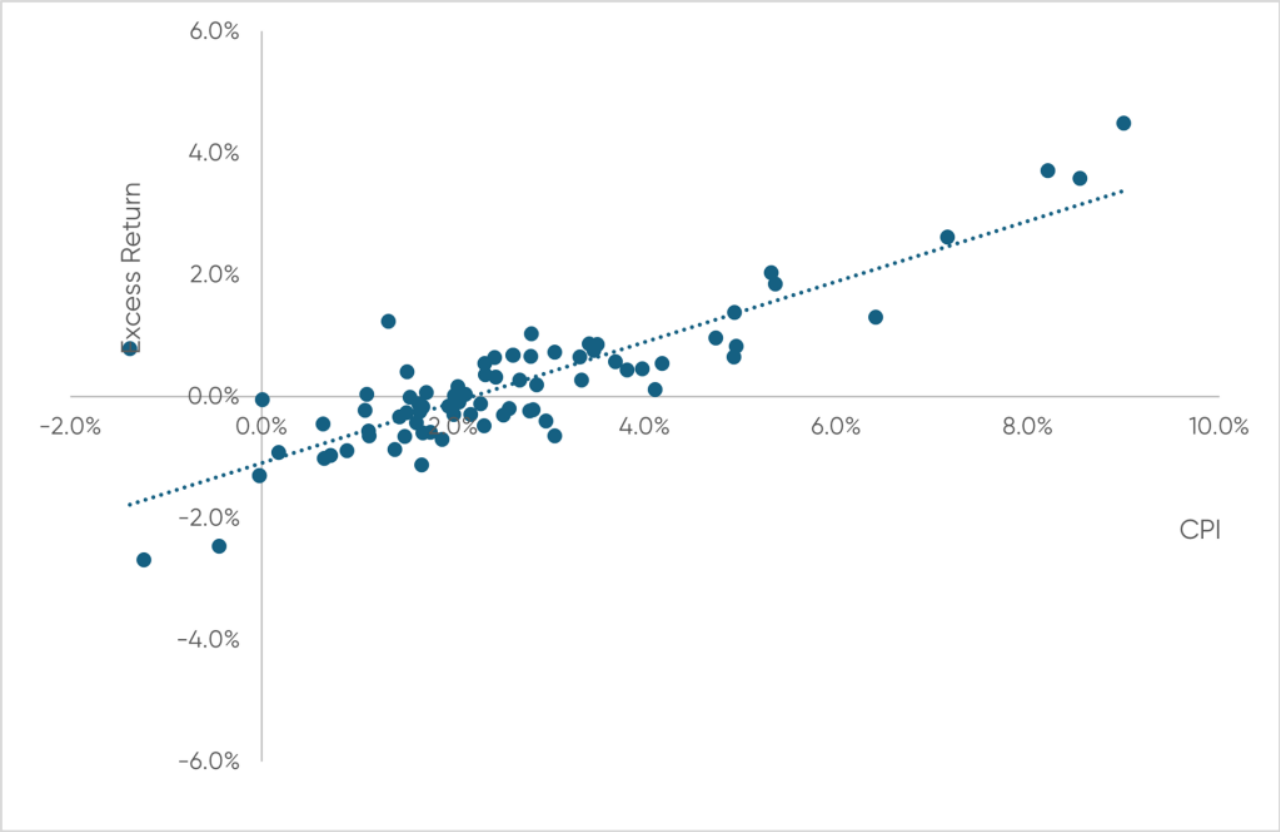
Another possibility is to replace some of the core portfolio's private equity allocation with private real estate or real assets. In illiquid form, these assets can be held directly without leverage and, therefore, with much less interest rate sensitivity. While private asset data is too sparse for the statistical analysis we have done here for liquid assets, we do believe that directly held real estate and assets demonstrate reliability against inflation. However, we also believe that for the typical endowment portfolio their opportunity cost is too great. The upside potential of private equity is too high to forgo for inflation hedging when there is a limited illiquid asset budget available. And unlike liquid hedges, an effective private asset hedge cannot be employed periodically but instead must be committed to and left in place

through complete inflation cycles. Private asset hedges can make sense for the largest endowments with very substantial illiquid allocations, particularly those with ancillary needs for real estate investment (such as universities and hospitals) and the very large scale necessary to consistently outperform in these sectors.

Inflation Swaps

An inflation swap is a derivative contract in which the payer pays an agreed-upon fixed rate at the outset of the swap while the receiver pays a rate equal to the inflation that is actually experienced during the swap's duration. The fixed-payer rate is thus effectively the prevailing breakeven inflation rate for the period. If realized inflation proves higher than this breakeven, the payer receives the difference, while if it comes in lower, the payer pays the difference. This instrument is purpose-built for inflation hedging and has several advantages. First, it is liquid and can be put on and taken off on a daily basis. Second, it has no direct interest-rate exposure, not only to rate duration but also to short-term rates. Third, while this market breakeven rate changes continuously, it is not very volatile (~2% annual volatility over the past ~25 years that this swap has been implementable**) compared to the core portfolio or the other hedges described above, which all have annual volatilities in the teens. This low volatility means an inflation swap can be added to the portfolio in large notional size without increasing overall portfolio risk. For illustration, consider 1-year swaps[11], which pay out based on realized inflation over 12 months:

Inflation Swap Hedged Portfolio Annual Excess Return vs Annual CPI



We observe very high correlation (~0.9) with inflation as hoped. At a size consistent with the swap's very low volatility (~75% of portfolio NAV), the portfolio, on average, gains a respectable ~0.65% for every 1% increase in in inflation. However, the swap is not a panacea because, as expected of any liquid market hedge, it is, over time, fairly valued: when inflation risks are high, the price of insurance goes up. During this period, these swaps post a gain in ~55% of rolling years and a loss in the other ~45%. Over very long periods, we expect a 50-50 track record. We believe inflation swaps can be very effective but, like other hedging tools, must be employed selectively when risks are elevated.

Conclusion

TIFF's approach to managing against inflation reflects these real-world observations. TIFF has largely eschewed gold as well as liquid real estate and real assets, and while we do not rule out private real estate and real assets as attractive investments *per se*, we have not deployed illiquid capacity to them for the purpose of inflation hedging, keeping the illiquid allocation focused on private equity. We will periodically employ the strategies supported by our observations:

- We may add passive broad **commodity** baskets, as well as maintain long-term investments in active equity managers who themselves will take on commodity exposure (e.g. in the metals and mining industry)
- We may shorten the portfolio's **duration**

- We may employ **inflation swaps**, either directly or in the form of short-term TIPS, which are effectively an inflation swap combined with a duration-reducing short-term treasury note

A common theme is that these hedges are not effective as “set and forget” permanent allocations; rather they must be managed and deployed periodically with an eye towards current inflation risks. TIFF implements these strategies for its clients selectively when warranted based on real time pricing and data around inflation expectations.

We find inflation hedging as challenging as does the rest of the investment world. Ultimately, we believe the best defense is a good offense: to maintain focus on generating long-term excess real return via an actively managed, equity-oriented portfolio with a prudent private investment allocation. We believe that running up the score with this approach, combined with some modest, carefully employed hedging, gives our clients the best long-term protection against inflation.

The materials are being provided for informational purposes only and constitute neither an offer to sell nor a solicitation of an offer to buy securities. These materials also do not constitute an offer or advertisement of TIFF’s investment advisory services or investment, legal or tax advice. Opinions expressed herein are those of TIFF and are not a recommendation to buy or sell any securities.

These materials may contain forward-looking statements relating to future events. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue,” the negative of such terms or other comparable terminology. Although TIFF believes the expectations reflected in the forward-looking statements are reasonable, future results cannot be guaranteed.

* Why 40 years? Beyond that time, the forms of inflation hedges that typical E&F investors can practically access were much less available, and data for them is sparse. For instance, TIPS were only introduced in 1997. More importantly, we believe the response of the economy and policy makers to inflation is meaningfully different since the devastating inflation of the 1970s and the massive response of the Volcker Fed wound down in the early 1980s.

** The inflation swap is equivalent to a position owning a TIPS and selling short a nominal treasury of exactly equal duration. The swap exists as a liquid instrument because of the introduction of TIPS in 1997.

Footnotes

1. US CPI Urban Consumers SA YoY as of December 31, 2024. Bloomberg.
2. S&P 500 Total Return Index as of December 31, 2024. Bloomberg.
3. Bloomberg Buyout Private Equity Index and Bloomberg Venture Capital Index as of December 31, 2024. Bloomberg.
4. Bloomberg US Aggregate Total Return Value Unhedged USD as of December 31, 2024. Bloomberg.
5. Bloomberg Commodity Index Total Return as of December 31, 2024. Bloomberg.
6. Bloomberg Gold Subindex Total Return as of December 31, 2024. Bloomberg.
7. Dow Jones Equity REIT Total Return Index as of December 31, 2024. Bloomberg.
8. MSCI World Infrastructure Net Total Return USD Index as of December 31, 2024. Bloomberg.
9. Bloomberg US Treasury Inflation-Linked Bond Index as of December 31, 2024. Bloomberg.
10. Bloomberg Short Treasury: 1-3 Months Total Return Index Unhedged as of December 31, 2024. Bloomberg.
11. USD Inflation Swap Zero Coupon 1 Year as of December 31, 2024. Bloomberg.

TIFF Investment Management



March 27, 2025

Copyright © 2026 TIFF Advisory Services, LLC. All rights reserved. May not be reproduced or distributed without permission.

TIFF 35TH
INVESTMENT MANAGEMENT
35TH ANNIVERSARY

How Endowments and Foundations Can Manage Inflation Risk

Executive Summary

- Hedging inflation in endowment and foundation portfolios is challenging because many hedging instruments have proven largely ineffective for two reasons:
    1. Low reliability: they do not reliably respond to inflation in the way theory suggests.
    2. High opportunity cost: they supplant productive core portfolio allocations and underperform when inflation is benign.
- Many "classic" hedging allocations such as real estate, real assets, and gold fall in this camp, suffering from unreliability and/or high net cost.
- Other strategies, including portfolio duration management and inflation swap overlays, have shown efficacy with carefully managed implementation.

The Challenge of Hedging Inflation

Of all the risks faced by endowment and foundation (E&F) investors, inflation is among the most challenging to hedge. Over time an actively managed portfolio consistently focused on equities, taking prudent advantage of private investments and appropriately diversified, has the best chance of delivering a robust real return over inflation. However, as we've been reminded over the last few years, spikes in inflation can make this goal harder to achieve. An inflation hedging allocation seeks to mitigate these periodic challenges.

The theory is straightforward – two types of assets should work as hedges:

1. Those with intrinsic value that will make their prices grow with inflation. For most portfolios, the investable version of such assets is commodities, including gold, and some commodity-like real assets such as timber.
2. Those with the ability to increase their cash yields in line with inflation. These assets include rent-generating real estate, infrastructure real assets such as toll roads or utilities, and inflation-indexed securities such as the US Treasury's TIPS.

Of course, the reality is anything but straightforward for two basic reasons. First, the economy hardly sits by passively when inflation emerges (or recedes) – consumers, producers, and government all react, impacting demand, supply, interest rates, and fiscal policy in ways that can overwhelm the theoretical responses of inflation hedges, making them **less reliable**. Second, inflation hedges have meaningful **opportunity cost** as they generally underperform when inflation is benign and also supplant part of the core elements of an investment portfolio, costs which can outweigh their benefits.

Which Classic Strategies Have Worked?

So, if inflation hedges are unreliable and costly, how does one decide which (if any) to employ? One approach is to assess reliability and opportunity cost practically by modeling an investable hedging strategy and observing whether it would have added value to the type of portfolio E&Fs actually employ. Let us first look at the impact of the classic hedging strategies mentioned above: commodities, including gold; real estate and real assets; and TIPS. We focus on practical liquid implementations that i) are accessible to typical E&Fs and ii) can be added to or removed from a portfolio as inflation risks warrant.

We look at rolling 1-year periods, both inflationary and non-inflationary, during the past 40 years*. We choose 1-year periods because the response of hedges to inflation[1] can take time, and shorter periods, such as a quarter-year, may not show a relationship, while longer multi-year periods often incorporate both an increase and subsequent decrease in inflation, again muddying the relationship. For each asset, first, we check reliability by observing the correlation of returns with inflation – is there evidence that the asset responds to inflation as hoped?

If there is a meaningful correlation, we will then check the cost/benefit: the excess return generated by the hedged portfolio vs the unhedged portfolio. To assess this cost/benefit correctly, the core portfolio must be representative – what core investment do we forgo and replace with a hedge? E&Fs are endlessly diverse in many dimensions, but at a high level share a fundamental investment goal: **funding** their missions **reliably** and **effectively** over the very **long term**. Parsing this goal leads to common requirements for their portfolios:

- **Funding** requires ready liquidity for distributions, while their **long-term** horizon often permits prudent but meaningful high-potential illiquid private investment.
- Continued **effectiveness** requires, at a minimum, growth with inflation net of distributions, while **reliability** requires volatility management via diversification.

To achieve these requirements, a typical TIFF client portfolio might have an illiquid budget of 10-35%, with the balance in liquid assets, and about 2/3rds of assets in growth-driving equities with the balance in volatility-reducing diversifying investments. For this exercise, we

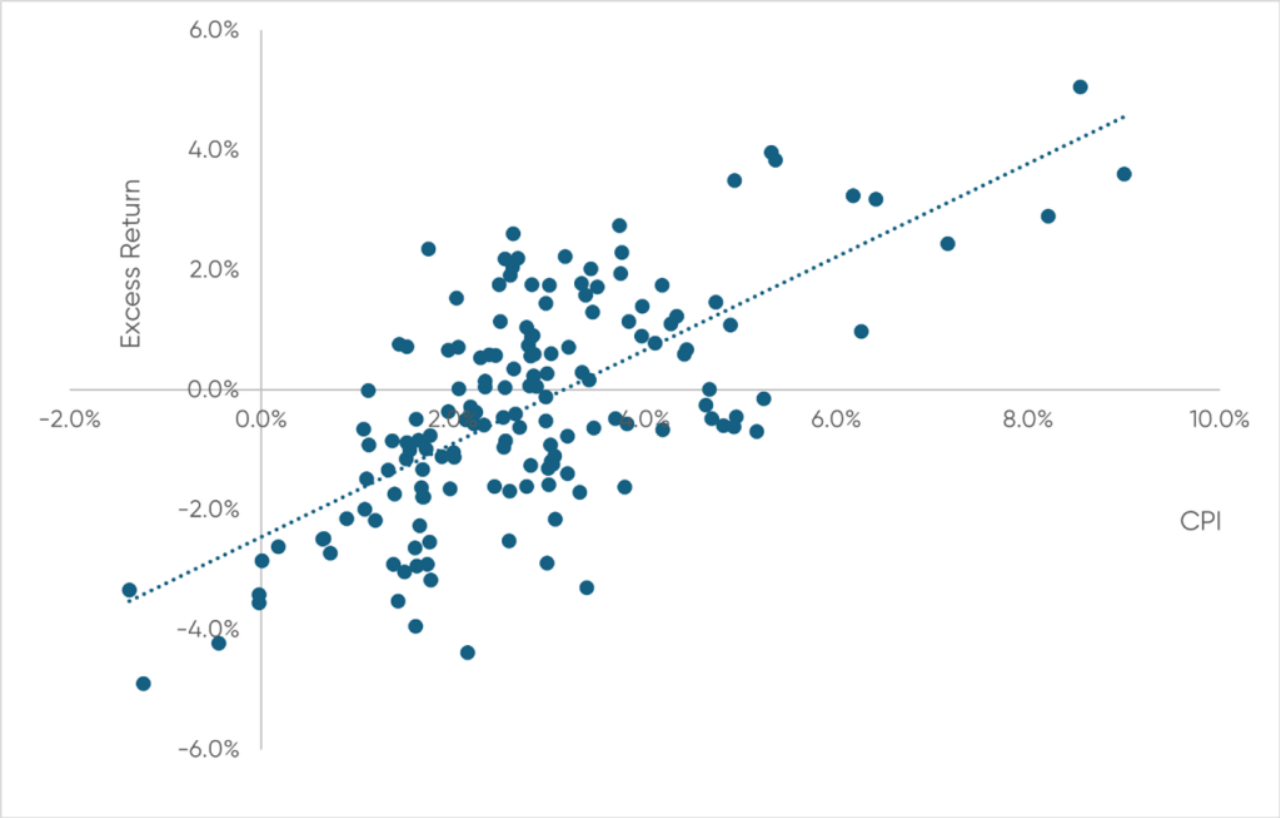
assume a core portfolio of 45% liquid equity[2], 20% private equity[3], and 35% fixed income[4].

Commodities and gold

A broad basket of commodities[5] has a correlation of about 0.64 over this period, indicating that statistically about 40% of its return is explained by inflation and that it has some promise as an inflation hedge. In contrast, gold[6], perhaps the most "classic" inflation hedging instrument, has a correlation of approximately zero. While there is little doubt that gold has some inherent inflation hedging power, this inflation response has generally been overwhelmed by all the other market forces driving its value. We do not rule out gold as a hedge but cannot call it reliable.

Having established that commodities have some reliability, we test adding commodities to the portfolio. Commodities are volatile but have very little correlation with equities, so they replace part of the core portfolio's non-equity diversifying allocation, 10% of it for our test.

Commodities Hedged Portfolio Annual Excess Return vs Annual CPI



We observe the high volatility and limited reliability of the hedge, particularly in years when inflation is not extreme: while about 40% of commodity return is explained by inflation, 60% is due to market forces unrelated to inflation. However, in the most inflationary (and

deflationary) years the relationship between commodities and inflation is more apparent. Across all observed periods, the commodity hedge generates approximately 0.75% additional return for each 1% rise in inflation—a significant contribution when endowments and foundations typically target a 5% real return. Commodities do not make sense to us as a permanent hedging allocation, but they can be valuable if selectively employed when inflation risks are emerging.

Real estate and real assets

Both liquid real estate[7] and liquid real assets[8] have correlations with inflation of about 0.1, indicating that inflation explains almost none of their returns. Some of their unreliability stems from factors noted above, such as the fact that in a dynamic economy, they may be unable to increase rents and other cash flows in line with inflation to the extent theory suggests. But the bigger factor degrading their hedging power is interest rate sensitivity. Real estate and real assets are inherently illiquid, but they are made liquid and readily investable via securitization in real estate investment trusts (REITs) and similar real asset structures. These structures are companies that borrow (typically 50% of assets or more) to grow and achieve equity-like returns and are negatively impacted by the rising rates that generally accompany inflation.

TIPS

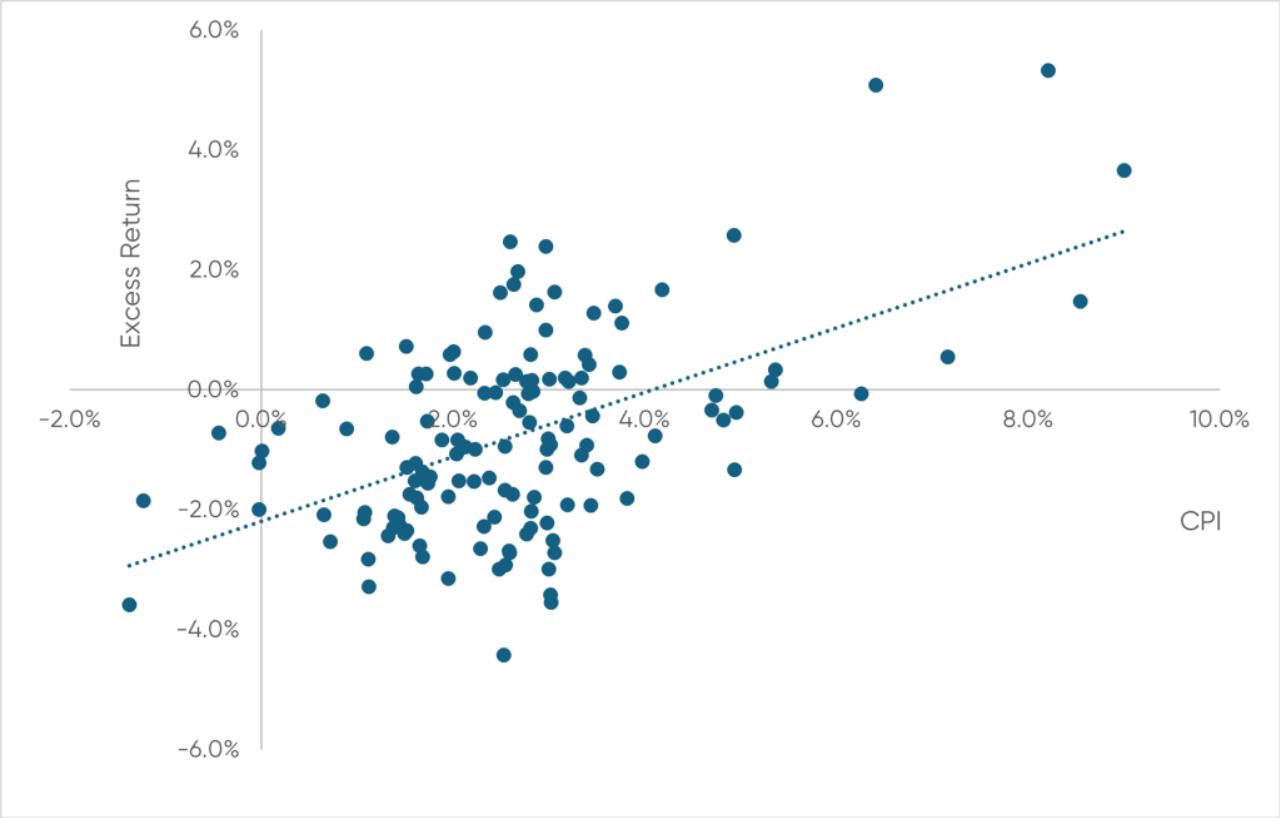
A broad TIPS index[9] has a correlation of approximately zero. This observation seems counterintuitive for an instrument indexed to inflation, but again, the reason is interest rate sensitivity. TIPS are bonds with duration, and on average their inflation indexing benefit is offset by their sensitivity to rising rates during emerging inflation.

What Other Strategies Can Help?

Short Duration

Since rising rates often accompany inflation, one approach could be simply to reduce the interest rate sensitivity (duration) of the portfolio. We model this strategy by exchanging longer-duration diversifying assets for cash-like very short-duration treasuries[10]:

Duration Hedged Portfolio Annual Excess Return vs Annual CPI



Similar to the commodity hedge, there is much volatility in most years as the return of interest rate exposure is, in general, not highly correlated with inflation; however, the relationship is again clearer in more extreme inflation regimes. Reducing portfolio duration when inflation-driven interest rate increases are anticipated clearly makes sense, but it's equally important to increase duration again ahead of interest rate reductions. The cost/benefit is moderate on average, as even if replacing the full 35% longer-duration allocation with cash (illustrated in the plot above), the portfolio's return increases by 0.5% for every 1% increase in inflation. Similar to commodities, shortening portfolio duration makes sense as an inflation hedge when applied selectively when risks are disproportionately towards higher inflation and rates.

Illiquid Real Estate / Real Assets

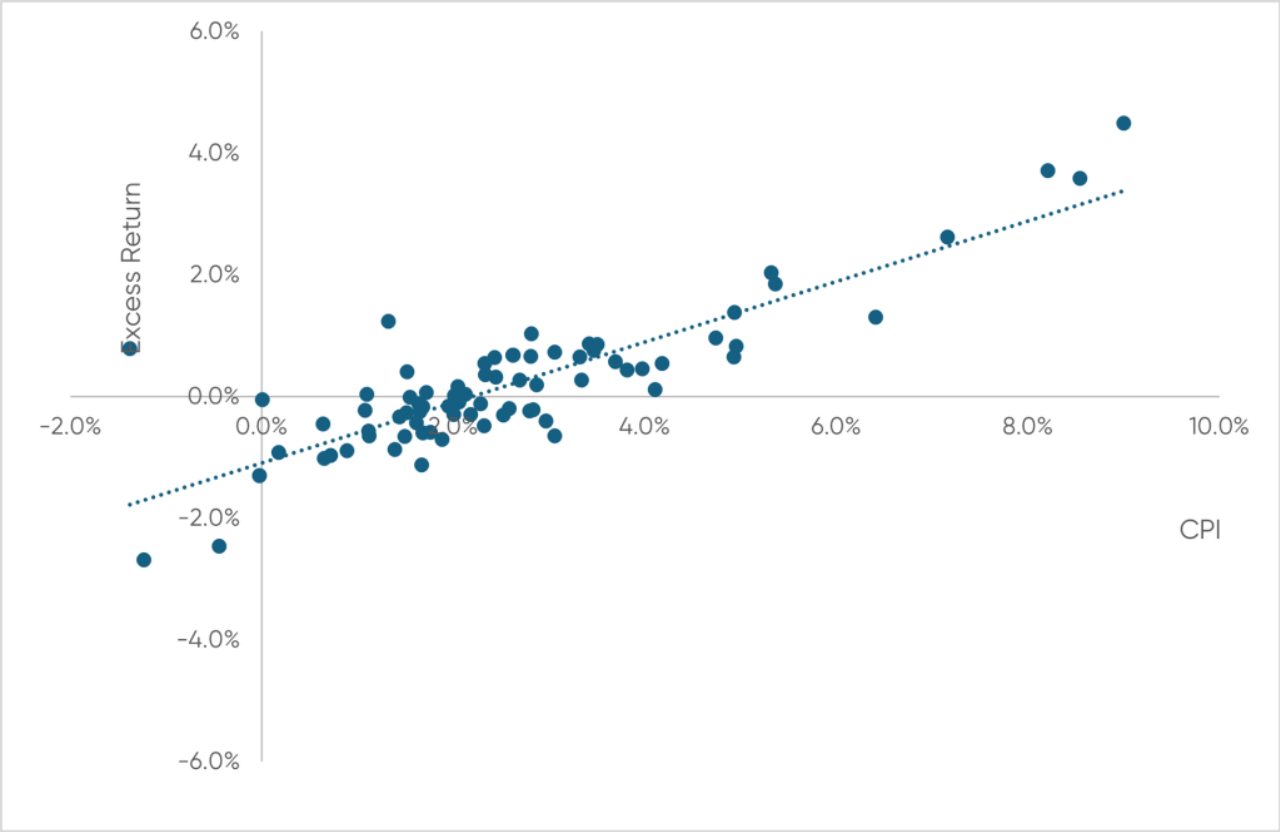
Another possibility is to replace some of the core portfolio's private equity allocation with private real estate or real assets. In illiquid form, these assets can be held directly without leverage and, therefore, with much less interest rate sensitivity. While private asset data is too sparse for the statistical analysis we have done here for liquid assets, we do believe that directly held real estate and assets demonstrate reliability against inflation. However, we also believe that for the typical endowment portfolio their opportunity cost is too great. The upside potential of private equity is too high to forgo for inflation hedging when there is a limited illiquid asset budget available. And unlike liquid hedges, an effective private asset hedge cannot be employed periodically but instead must be committed to and left in place

through complete inflation cycles. Private asset hedges can make sense for the largest endowments with very substantial illiquid allocations, particularly those with ancillary needs for real estate investment (such as universities and hospitals) and the very large scale necessary to consistently outperform in these sectors.

Inflation Swaps

An inflation swap is a derivative contract in which the payer pays an agreed-upon fixed rate at the outset of the swap while the receiver pays a rate equal to the inflation that is actually experienced during the swap's duration. The fixed-payer rate is thus effectively the prevailing breakeven inflation rate for the period. If realized inflation proves higher than this breakeven, the payer receives the difference, while if it comes in lower, the payer pays the difference. This instrument is purpose-built for inflation hedging and has several advantages. First, it is liquid and can be put on and taken off on a daily basis. Second, it has no direct interest-rate exposure, not only to rate duration but also to short-term rates. Third, while this market breakeven rate changes continuously, it is not very volatile (~2% annual volatility over the past ~25 years that this swap has been implementable**) compared to the core portfolio or the other hedges described above, which all have annual volatilities in the teens. This low volatility means an inflation swap can be added to the portfolio in large notional size without increasing overall portfolio risk. For illustration, consider 1-year swaps[11], which pay out based on realized inflation over 12 months:

Inflation Swap Hedged Portfolio Annual Excess Return vs Annual CPI



We observe very high correlation (~0.9) with inflation as hoped. At a size consistent with the swap's very low volatility (~75% of portfolio NAV), the portfolio, on average, gains a respectable ~0.65% for every 1% increase in in inflation. However, the swap is not a panacea because, as expected of any liquid market hedge, it is, over time, fairly valued: when inflation risks are high, the price of insurance goes up. During this period, these swaps post a gain in ~55% of rolling years and a loss in the other ~45%. Over very long periods, we expect a 50-50 track record. We believe inflation swaps can be very effective but, like other hedging tools, must be employed selectively when risks are elevated.

Conclusion

TIFF's approach to managing against inflation reflects these real-world observations. TIFF has largely eschewed gold as well as liquid real estate and real assets, and while we do not rule out private real estate and real assets as attractive investments *per se*, we have not deployed illiquid capacity to them for the purpose of inflation hedging, keeping the illiquid allocation focused on private equity. We will periodically employ the strategies supported by our observations:

- We may add passive broad **commodity** baskets, as well as maintain long-term investments in active equity managers who themselves will take on commodity exposure (e.g. in the metals and mining industry)
- We may shorten the portfolio's **duration**

- We may employ **inflation swaps**, either directly or in the form of short-term TIPS, which are effectively an inflation swap combined with a duration-reducing short-term treasury note

A common theme is that these hedges are not effective as “set and forget” permanent allocations; rather they must be managed and deployed periodically with an eye towards current inflation risks. TIFF implements these strategies for its clients selectively when warranted based on real time pricing and data around inflation expectations.

We find inflation hedging as challenging as does the rest of the investment world. Ultimately, we believe the best defense is a good offense: to maintain focus on generating long-term excess real return via an actively managed, equity-oriented portfolio with a prudent private investment allocation. We believe that running up the score with this approach, combined with some modest, carefully employed hedging, gives our clients the best long-term protection against inflation.

The materials are being provided for informational purposes only and constitute neither an offer to sell nor a solicitation of an offer to buy securities. These materials also do not constitute an offer or advertisement of TIFF’s investment advisory services or investment, legal or tax advice. Opinions expressed herein are those of TIFF and are not a recommendation to buy or sell any securities.

These materials may contain forward-looking statements relating to future events. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue,” the negative of such terms or other comparable terminology. Although TIFF believes the expectations reflected in the forward-looking statements are reasonable, future results cannot be guaranteed.

* Why 40 years? Beyond that time, the forms of inflation hedges that typical E&F investors can practically access were much less available, and data for them is sparse. For instance, TIPS were only introduced in 1997. More importantly, we believe the response of the economy and policy makers to inflation is meaningfully different since the devastating inflation of the 1970s and the massive response of the Volcker Fed wound down in the early 1980s.

** The inflation swap is equivalent to a position owning a TIPS and selling short a nominal treasury of exactly equal duration. The swap exists as a liquid instrument because of the introduction of TIPS in 1997.

Footnotes

1. US CPI Urban Consumers SA YoY as of December 31, 2024. Bloomberg.
2. S&P 500 Total Return Index as of December 31, 2024. Bloomberg.
3. Bloomberg Buyout Private Equity Index and Bloomberg Venture Capital Index as of December 31, 2024. Bloomberg.
4. Bloomberg US Aggregate Total Return Value Unhedged USD as of December 31, 2024. Bloomberg.
5. Bloomberg Commodity Index Total Return as of December 31, 2024. Bloomberg.
6. Bloomberg Gold Subindex Total Return as of December 31, 2024. Bloomberg.
7. Dow Jones Equity REIT Total Return Index as of December 31, 2024. Bloomberg.
8. MSCI World Infrastructure Net Total Return USD Index as of December 31, 2024. Bloomberg.
9. Bloomberg US Treasury Inflation-Linked Bond Index as of December 31, 2024. Bloomberg.
10. Bloomberg Short Treasury: 1-3 Months Total Return Index Unhedged as of December 31, 2024. Bloomberg.
11. USD Inflation Swap Zero Coupon 1 Year as of December 31, 2024. Bloomberg.

TIFF Investment Management



March 27, 2025

Copyright © 2026 TIFF Advisory Services, LLC. All rights reserved. May not be reproduced or distributed without permission.