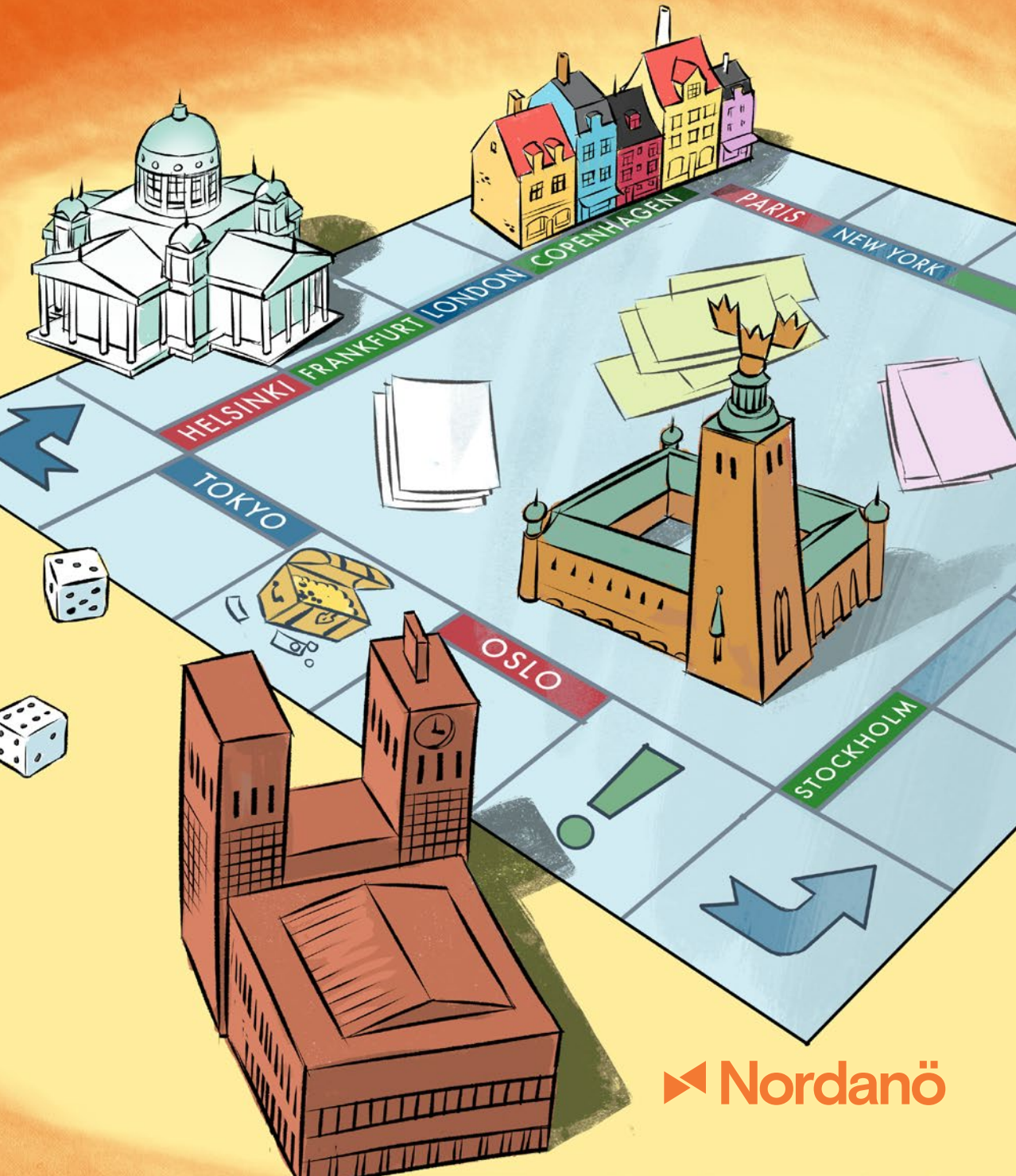


A tale of four properties

The Nordics: four countries – one market?

December 2019



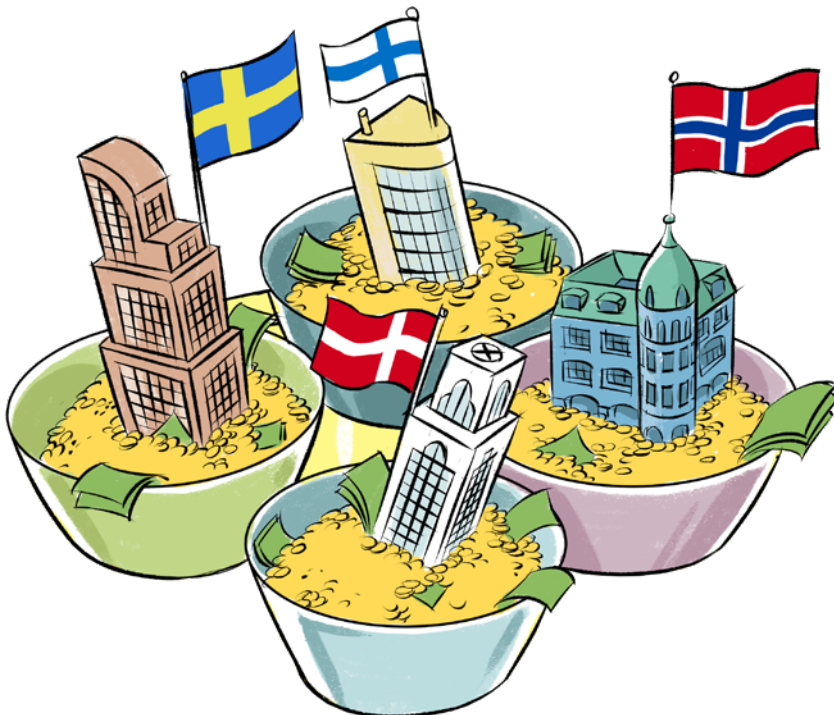
A tale of four properties

The Nordics: four countries – one market?

Are the Nordic countries a single market, from a property investor's perspective? Do risk-return profiles differ between the countries? We will illustrate this with a Tale of Four Properties; the story of a fictional investor who bought one property in each of the Nordic capitals. In addition, currency regimes, interest rates and monetary policy are different in each country. How should an investor approach this? What is the impact on risk and returns?

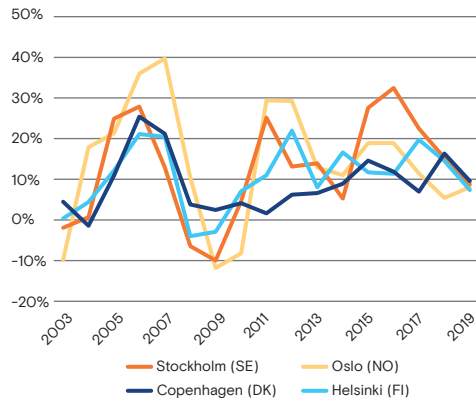
Once upon a time – in 2002 – there was an institutional investor called Inve. He learned that it would be great to invest in property in the Nordics⁽¹⁾. Since Inve was cautious and prudent he decided to invest in all four Nordic countries; he bought a prime property in each of the Nordic capitals: Stockholm, Oslo, Copenhagen and Helsinki. Almost 20 years later, Inve evaluated his investments. In this article we will try to illustrate what his conclusions might have been.

To compare the risk-return characteristics, as well as the currency implications, of investing in the four Nordic countries, we have modelled four fictional properties in the Nordic capitals. Each property represents a prime office property in Stockholm, Oslo, Copenhagen and Helsinki, respectively. Using long term time series for office rents, as well as historical yields in each capital, we have recreated a total return time series from 2002 to 2019 for each of these fictional properties.⁽²⁾



The chart below shows the total return of the four properties. It is apparent that the returns are correlated and that volatility is higher in Oslo and Stockholm and lower in Copenhagen and Helsinki.

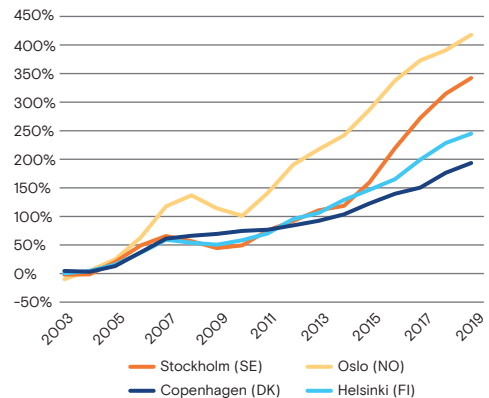
Total return in local currency – correlated but with different volatilities



Source: Nordanö

Accumulated total return during the period has been highest in Oslo (over 400%) followed by Stockholm, Helsinki and Copenhagen, as shown in the graph below.

Accumulated total return – Oslo has outperformed

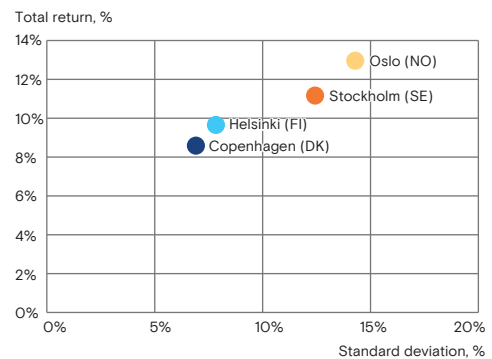


Source: Nordanö

As seen above there are substantial differences in returns between the four markets, but how about risk?

The four points in the chart to the right form an almost perfect efficient frontier. Return and risk increase in tandem. The property in Oslo has offered the highest return but also the highest volatility. On the opposite end of the scale, a property in Copenhagen has offered the lowest return and the lowest volatility. Stockholm is, theoretically, the marginally less attractive investment since a combination of investments in Oslo and Helsinki could achieve a higher return with a similar risk (or the same return with a lower risk), since the point for Stockholm in the scatter plot is below the imaginary line connecting Oslo and Helsinki.⁽³⁾

Total return and volatility – an efficient frontier



Source: Nordanö

⁽¹⁾ For the purpose of this article we use "the Nordics" and "the Nordic countries" to denote Finland, Sweden, Denmark and Norway. We have excluded Iceland, which has a population of only 350,000 inhabitants.

⁽²⁾ Please note that these results may differ from appraisal-based series, such as MSCI's private property indices.

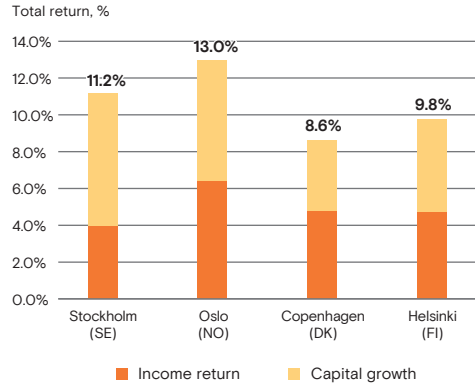
⁽³⁾ Please note that the results of our analysis are similar, independently of the start year of the time series. On a side note, changing start and end times normally has more effect on returns than on volatility. But in this case, the shape of the efficient frontier is similar, independently of the chosen time period, implying a high robustness for our conclusions.



As we saw earlier Helsinki and Copenhagen have lower risk in terms of volatility. This can to some extent be explained by looking at the composition of the total return. As you can see in the bar chart to the right, in Helsinki and Copenhagen a larger proportion of the total return comes from income return, rather than capital growth. Conversely, in Stockholm and Oslo a higher proportion of the returns come from capital growth (almost two thirds in Stockholm).

While income return is stable, capital growth is significantly more volatile. In the table below, you can see the breakdown of volatility between income return and capital growth. Volatility for income return is very low in all four capitals; most of the volatility stems from the capital growth component.

Income return and capital growth – how is the total return split?



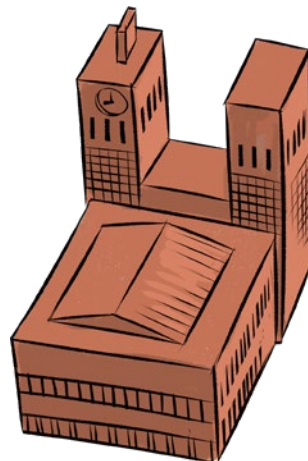
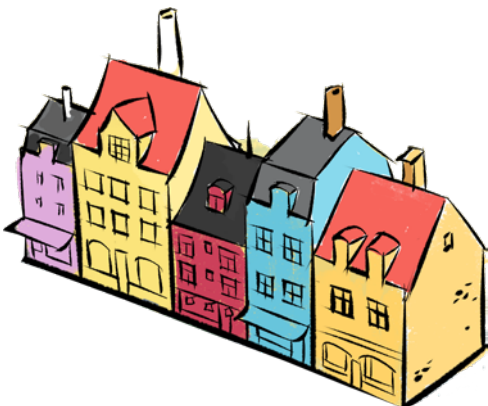
Source: Nordanö

Volatility split – mostly from capital growth

	Stockholm (SE)	Oslo (NO)	Copenhagen (DK)	Helsinki (FI)
Income return volatility	0.8%	1.0%	0.8%	0.9%
Capital growth (rent) volatility	8.6%	13.9%	3.1%	3.9%
Capital growth (yield) volatility	8.2%	7.3%	6.6%	7.0%
Total return volatility	12.4%	14.5%	6.9%	7.8%

Source: Nordanö

The more of the returns that comes from capital growth, the higher the risk. This is similar to the results we found when comparing prime and secondary properties in last year's research report ('Is property the holy grail of investments?'). In addition, the higher capital growth volatility in Oslo and Stockholm is primarily explained by the rent component of capital growth; i.e. rents are more volatile.



The Nordics – a single market?

As you can see in the table below, the correlations between the four Nordic capitals are relatively high; all correlations are greater than 0.5, which indicate moderate to high correlations.

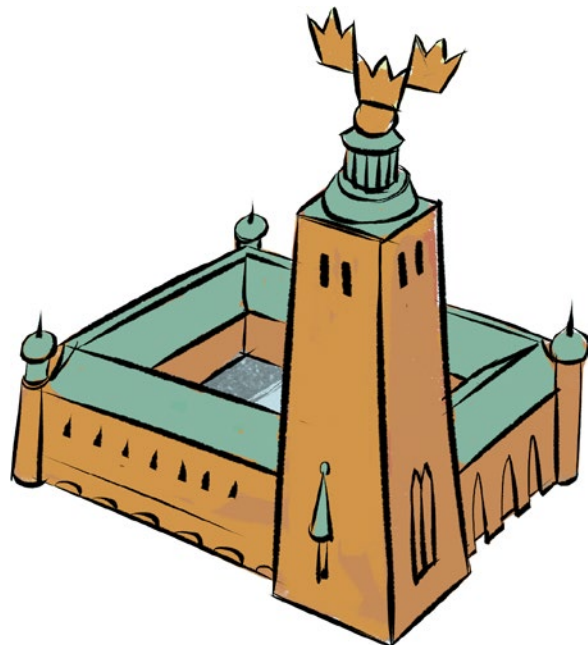
Correlation between the four Nordic capitals – moderate to high

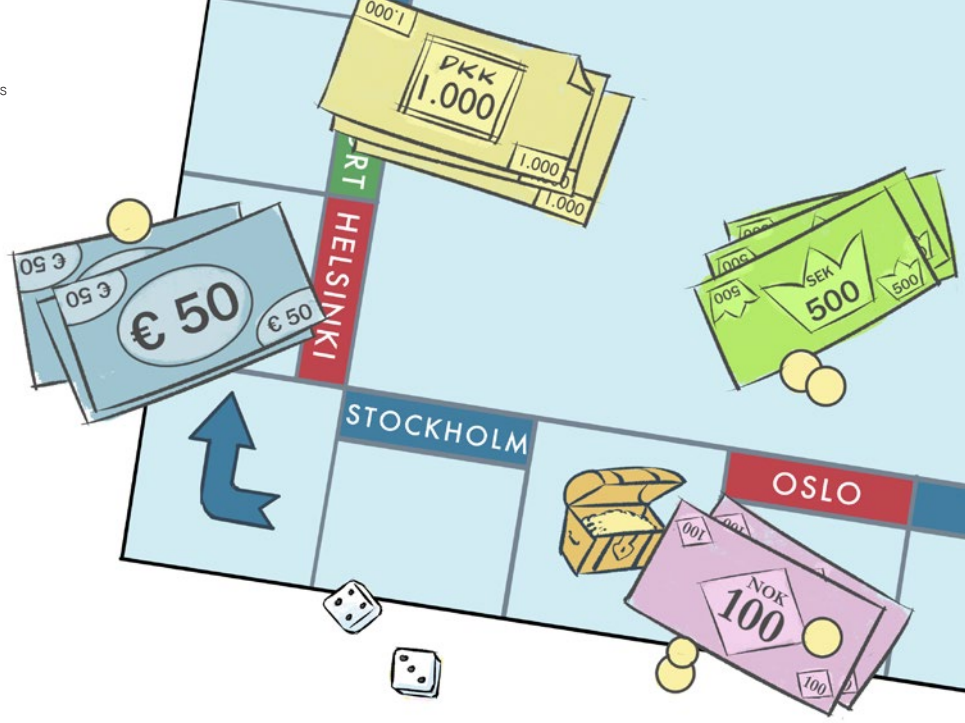
Total return from 2003	Stockholm (SE)	Oslo (NO)	Copenhagen (DK)	Helsinki (FI)
Stockholm (SE)	1.00	0.63	0.54	0.68
Oslo (NO)	0.63	1.00	0.51	0.69
Copenhagen (DK)	0.54	0.51	1.00	0.62
Helsinki (FI)	0.68	0.69	0.62	1.00

Source: Nordanö

The highest correlations are between Helsinki and Stockholm and Helsinki and Oslo, while Copenhagen is somewhat of an outlier, being less correlated with the other Nordic capitals. Keeping in mind that we are only examining prime offices in the capitals, the slight divergence for Copenhagen can be explained by the different dynamics of that particular market. As opposed to the other Nordic capitals, the prime office areas in Copenhagen are less limited and offer substantial potential for new supply.

Based on this perspective and given the relative high correlations between returns, the Nordic countries can be seen as very similar property markets, at least the capitals.



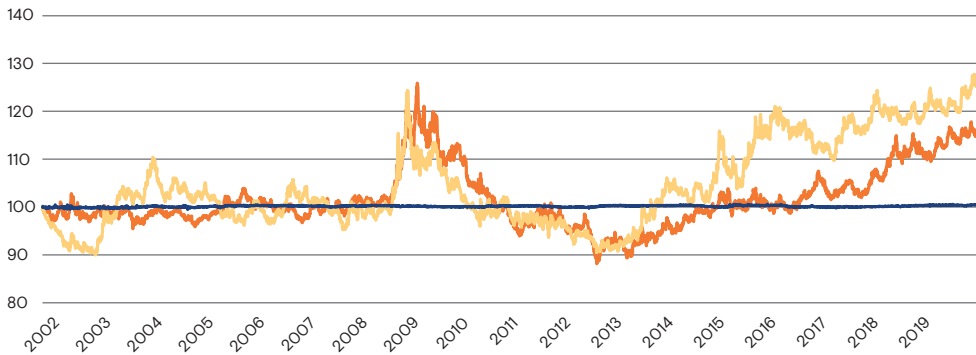


Currency risk

As can be seen in the chart below the Swedish Krona and the Norwegian Krone have fluctuated substantially against the Euro. The Danish Krone has kept its peg against the Euro with no short and medium term volatility.

Currency fluctuations against the Euro

Indexed FX rates (2002-01-01=100)







Source: Reuters

— EUR/SEK — EUR/NOK — EUR/DKK



Currency regimes and monetary policies:

	 Finland	 Sweden	 Denmark	 Norway
Currency	Euro (EUR)	Swedish Krona (SEK)	Danish Krone (DKK)	Norwegian Krone (NOK)
Currency regime	Member of the Eurosystem since 1999	Floating regime since the 1992, when Sweden left the European Exchange Rate Mechanism (ERM)	Fixed exchange rate with the Euro since 1999. Pegged to the Euro at a conversion rate of 7.46 (+/- 2.25 percentage points).	Floating regime since 1992
Monetary policy:	Decided by the European Central Bank (ECB)	Decided by Sveriges Riksbank	Decided by Danmarks Nationalbank, of the fixed exchange rate policy with the sole purpose of keeping the Krone stable against the Euro.	Decided by Norges Bank
Inflation target:	Below, but close to 2% over the medium term	Around 2% (+/- 1 percentage point)	Below, but close to 2% over the medium term	Close to 2% over time
Current inflation:	0.7% ⁽⁴⁾	1.5% ⁽⁶⁾	0.6% ⁽⁷⁾	1.8% ⁽⁸⁾
Current interest rate:	-0.21% ⁽⁵⁾	0.31% ⁽⁵⁾	-0.09% ⁽⁵⁾	1.92% ⁽⁵⁾
Comments:	Negative interest rates since June 2014. Between March 2015 and November 2019 – as part of its quantitative easing program – the ECB has bought government and corporate bonds, as well as other financial instruments, for around €2,700 billion.	Negative policy rate since February 2015. First increase in seven years in January 2019 (from -0.50% to -0.25%). The Swedish Krona is at its weakest level since 2009 against the Euro.	Negative policy rate since 2012 (with the exception of a brief period during 2014). Denmark has a formal exemption from the EU treaty, which requires member states to switch to the Euro from their respective local currencies.	Unlike Sweden, Denmark and the Eurozone, Norway has maintained positive policy rates. Interest rates have been lowered three times in 2019. The currency is linked to the oil price development, as is the Norwegian economy as a whole.

⁽⁴⁾ Source: Statistics Finland, CPI, October 2019

⁽⁵⁾ Source: 5-year swap rates December 4th 2019

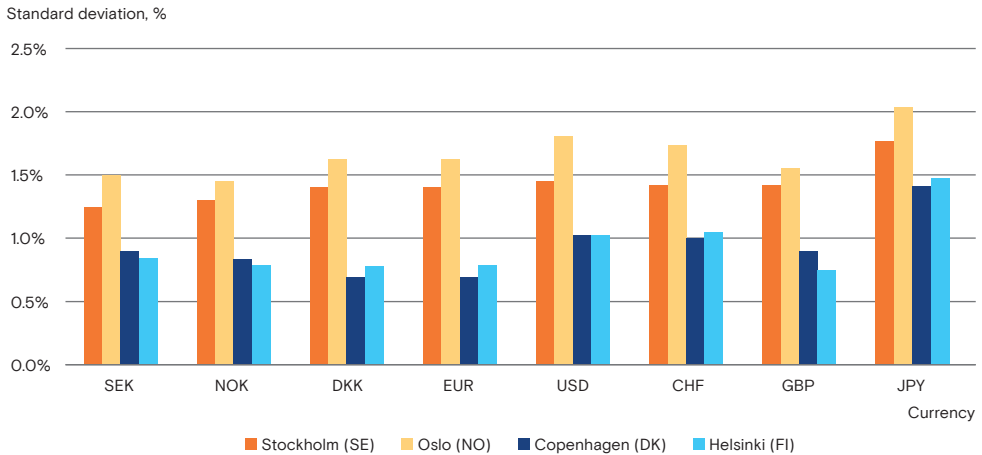
⁽⁶⁾ Source: Statistics Sweden, KPIF, October 2019

⁽⁷⁾ Source: Statistics Denmark, CPI, October 2019

⁽⁸⁾ Source: Statistics Norway, CPI, October 2019



Volatility depending on the investor's home currency



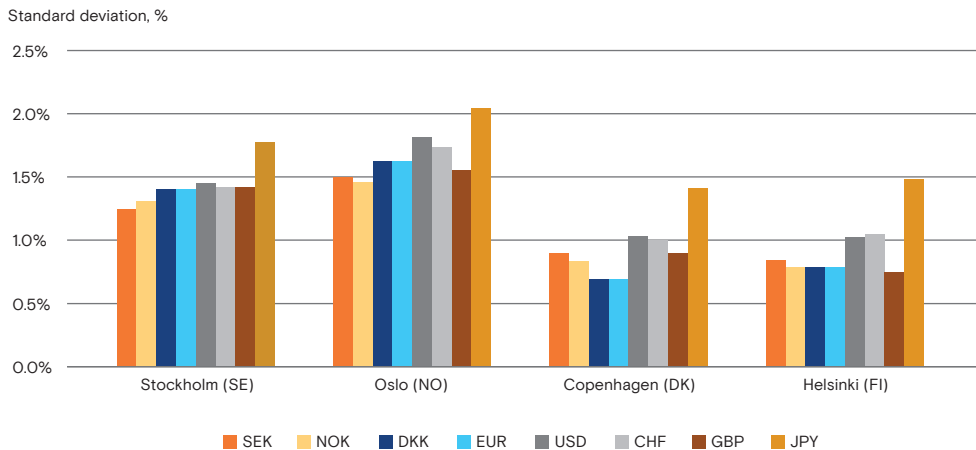
Source: Nordanö

As you can see in the graph above, volatility in Stockholm and Oslo is significantly higher, independently of the investors home currency.

For example, for a EUR-based investor, investing in Stockholm or in Oslo adds significant volatility in two ways. Firstly, the properties in Stockholm and Oslo have higher volatility in their respective local currency, compared to Helsinki and Copenhagen. Secondly, additional volatility is added by moving from EUR to SEK and NOK, respectively.



Volatility in the four cities measured in different currencies



The chart above brings some interesting and intriguing insights. Volatility, for all four properties is lowest in the local currency. This corresponds to the rather intuitive notion that the aggregate risk is lower, if you invest in your own currency. Looking at the Swedish property in Stockholm as an example, we see that volatility is lowest measured in SEK, followed by the other currencies, which show similar volatilities, with the exception of the Japanese Yen. It is striking how 'flat' the groups of bars are, in particular in Sweden. Looking at the eight bars for the

Stockholm property, very little volatility is added by moving from SEK to the other currencies (except the Japanese Yen). As a side note, it is noteworthy that a Japanese Yen based investor would have had the highest volatility by far, in all four countries, compared to investors with other home currencies.

The main conclusion of this analysis is that most of the volatility is due to the underlying property market volatility, rather than due to the currency exposure.

Currency hedging

Analysing the effects of currency hedging is outside the scope of this article (and a possible topic for a future report). The effects of hedging will depend on a series of factors: debt in local currency, total vs. partial hedging, continual hedging vs hedging at specific times, etc.

Having said that, bear in mind that currency hedging only protects against short and medium term volatility as well as unexpected changes in the currency; it does not protect against the drift caused by interest rates differentials, which is priced into forward contracts for currencies.





An illustration on the left side of the page shows a hand in a white shirt sleeve holding a large, golden funnel. Below the funnel, a small brown building with a flag on top sits on a large golden coin. The background features a stylized city skyline with various building shapes in shades of blue and grey.

Conclusions

Regarding our fictional investor Inve, he would probably have been very happy with his investments in the Nordics; he would have achieved a 300% return on his Nordic properties. He would also have noted that risk and return were higher in Norway and Sweden, compared to Finland and Denmark. In addition, he might have been surprised by how correlated the markets were.

The benefits of diversifying internationally for property investors, and for investors in general, have been studied and analysed extensively. Such a strategy adds currency exposure and risk, though. However, as has been shown above, the volatility of the underlying investments is far higher than the additional volatility of investing in a different currency. Thus, an investor should focus on understanding the characteristics of the underlying property investment; the currency risk is secondary.⁽⁹⁾

In spite of having different currencies, different interest rates and different economies, the Nordic countries' property markets show high correlations, implying that they, to some extent, can be seen as one market. However, bear in mind that although the correlations are relatively high, there are differences between the countries, not the least cultural. The nuts and bolts of property investments contribute to the property sector being a local business.

⁽⁹⁾ With the exception of the Japanese Yen



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