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Scandinavian bonds - the "ultimate" security

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A "Scandinavian High Quality" portfolio offers investors exposure to a AA credit rating, a reasonable return and high liquidity. It is, we believe, an almost unbeatably attractive risk-return tradeoff and provides a relatively high degree of security in times of crisis. The strategy is also lowly correlated to risky assets and most other Fixed Income markets. We regard this strategy as "cash near" alternative.

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Scandinavian bonds -The “ultimate” security

- Since the global financial crisis began in September 2008, the world’s largest central banks have contained multiple crises using unconventional monetary policy. Their actions, however, have also dominated the global economy and capital markets and generated multiple asset price bubbles.
- Valuations are high in most asset classes, interest rates are very low and many problems are still unresolved. For these reasons, we think investors who have steadily reduced the amount of so-called “safe assets” in their portfolios over the last decade should begin rebuilding exposure to such assets in their portfolios.
- The permanent liquidity injection of central banks via quantitative easing has also caused many investors (like banks) to hold more cash than they want to and are charged for it due to negative interest rates. For these investors, “safe assets” can also be an alternative to cash holdings (possibly at the central banks).
- “Safe assets” are liquid capital investments that would survive most risk scenarios in a stable manner and have a low correlation with risky assets in an extreme crisis situation, thus providing genuine diversification away from risky assets and illiquid investments within a portfolio. In addition, “safe assets” should have a certain minimum return and should be simple, transparent and low in total costs.
- We consider Scandinavian bond investments – primarily bonds issued in Sweden, Denmark, Norway and Finland in Scandinavian currencies or EUR – as “safe” alternatives to German Bunds and other bonds issued by European core countries. Scandinavia as a region offers the “ultimate” security – a perfect combination of stability, flexibility and dynamism.
- With a volume of approximately 1.7 trillion converted to €, the Scandinavian bond market is by no means small and has other features that may interest investors. In contrast to other fixed income markets, this market has also not grown dramatically over the last decade due to rock solid economies, governments and institutions.
- The only bond segment in Scandinavia that will be novel for many (Eurozone) investors is the Danish mortgage bond market, particularly mortgage bonds with termination options (“callables”). Foreigners hold approximately 35% of these bonds.
- Danish mortgage bonds with termination options are very attractive in a low interest-rate environment. They have a spread of approximately 1.5-2 percent due to the option premium, an additional return that has nothing to do with credits and credit risk. Indeed, the bonds all have an AAA or at least a AA rating. Compared to the general interest rate level, the spread is high and stable.
- Nevertheless, as a matter of principle we do not consider a portfolio comprised of only Danish mortgage bonds as the most suitable investment for those seeking more exposure to “safe assets”. For that, we recommend a diversified (aggregate) Scandinavian bond portfolio, which, while heavily weighted in favor of Danish mortgage bonds, expands the investment universe to include all Scandinavian investment grade bonds that are either listed in Scandinavian currencies or issued by Scandinavian issuers (“Scandinavian High Quality”). A portfolio of strictly Danish mortgage bonds with termination options would be over-concentrated on the Danish property market and on only a few issuers.
- A “Scandinavian High Quality” portfolio offers investors exposure to a AA credit rating, a reasonable return and high liquidity. It is, we believe, an almost unbeatably attractive risk-return tradeoff and provides a relatively high degree of security in times of crisis. The strategy is also lowly correlated to risky assets and most other Fixed Income markets. We regard this strategy as “cash near” alternative.

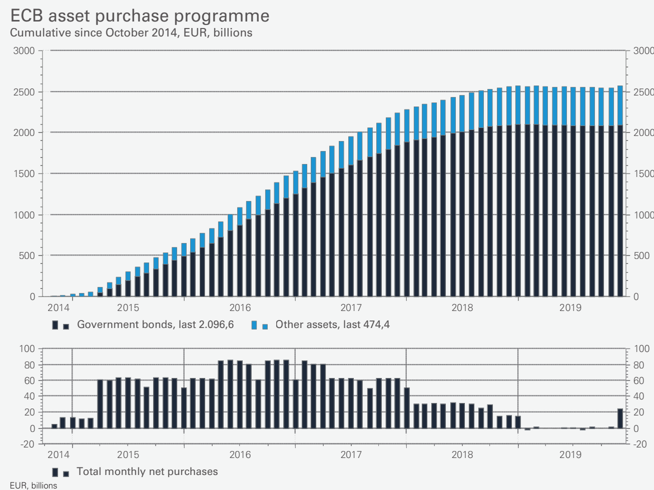
Scandinavian bonds - the "ultimate" security

Why are "safe assets" so important today?

September 2018 marked the tenth anniversary of the beginning of the global financial crisis. Since September 2008, central bank policies have dominated national economies and capital markets. After Lehman Bros. declared bankruptcy, central banks used interest rate policy and, later, unconventional monetary policy, to prevent the crisis from getting even worse. In the process, however, they greatly expanded their political influence.

Unconventional central bank policies explicitly supported asset prices at the beginning of the crisis, but they have come under criticism over the last few years because of the collateral damage they caused.1 Since the beginning of the "Asset Purchase Program" (APP) in October 2014, the ECB alone has purchased nearly €2.5 trillion of bonds - particularly government bonds--from Eurozone issuers. In doing so, the central bank further depressed interest rates, which were already low due to weak growth and the deflationary impulses of the last decade. That, in turn, made conservative, capital protecting, low risk investments more difficult to find for private savers and institutional investors (cf. Figure 1).

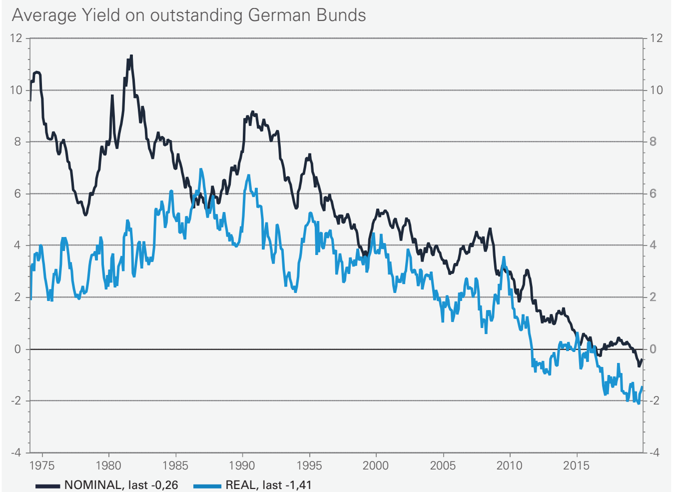
Figure 1:
The security purchases of the ECB



As of 16 December 2019
Source: Refinitiv Datastream

As a result, yields on bonds global investors regarded as "safe" dropped to historic lows. Ultra-low yields have made government bonds in Germany, Switzerland and Japan all but irrelevant for many institutional investors who require a certain minimum yield on their capital investments. In addition to low nominal yields, these bond markets have negative inflation-adjusted yields. This is particularly true for German Bunds (cf. Figure 2).

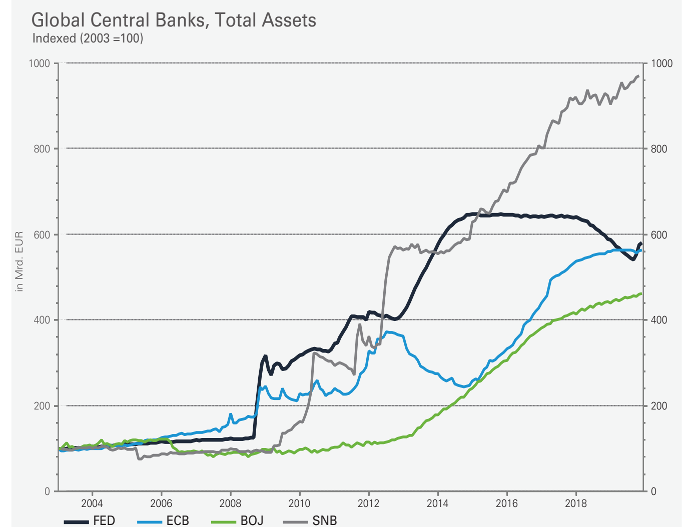
Figure 2:
Real yield on German Bunds



As of 16 December 2019
Source: Refinitiv Datastream

The era of monetary expansion everywhere (after a short interruption in H2/18 and H1/19) is back and well alive at the end of 2019. There are clear indications from central banks that interest rates remain "lower for longer" and that the balance sheets of global central banks will continue to expand. (cf. Figure 3).

Figure 3
Central bank balance sheet totals



As of 16 December 2019
Source: Refinitiv Datastream

Valuations are high in nearly all asset classes, which raises the risk of a negative market reaction in the medium term, as the "central bank put" is becoming less efficient and cannot go on forever. In theory, almost all asset classes are vulnerable to a shock, due to the far-reaching nature of the past decade's liquidity boom.

In the wake of the long asset price boom, the world faces economic and political risks such as the trade wars, political crisis in the Eurozone, populism, the questioning of the "old world order" by US President Donald Trump, and the strength of the USD. Institutional investors have continued to increase their share of riskier, more illiquid investments over the last few years, while bond allocations have kept on falling, especially in Germany (cf. Figure 4).[2]

In this context, we see good reasons to hold a solid share of investment portfolios in "safe assets" and even to increase this share in the near future.[3]

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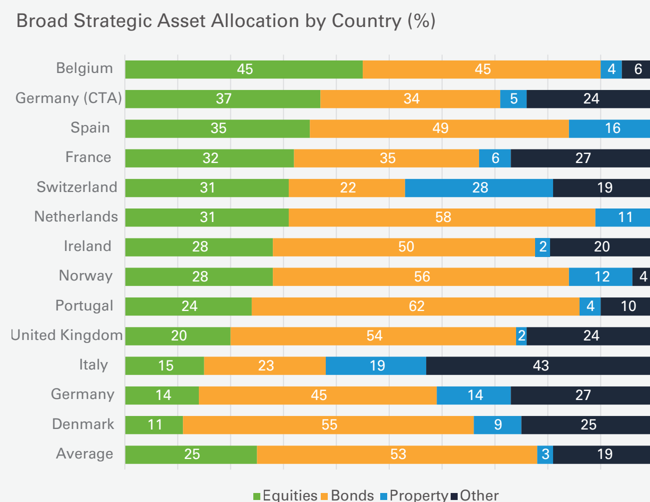
Figure 4
The asset allocation of institutional investors (2019)



Status 2019
Source: Mercer

Where does one find "safe assets?"

It's not easy to define what "safe assets" are. The global financial crisis proved that it is impossible to achieve absolute security while investing in capital markets. All asset prices can fall, and countries can go bankrupt or refuse to pay interest and principal. Short bonds can experience worsening reinvestment conditions or suffer real losses, while both property values and rental demand can decline precipitously.

We therefore use "safe asset" as a relative term. "Safe assets" do not guarantee a positive return in every scenario. Rather, we look for liquid investments that could survive "on their own" in most risk scenarios and have a low correlation to risky assets in extreme crisis situations, thus providing genuine diversification away from risky assets and illiquid investments within a portfolio.

There are very few such investments, as the investments must be secure and liquid, earn a certain minimum return with relatively low total costs and have an investment process that is as simple and transparent as possible.

In order to get a feel for which regions are safe, we looked at the welfare index of the countries in the Legatum Institute Foundation (UK).[4] Welfare is defined therein not only in terms of wealth, but also in a more comprehensive sense. In addition to good economic numbers, truly wealthy countries also score well on measures of sustainability, health care system efficiency, environmental stewardship, social capital, personal freedom, political stability, safety and governance, and free-market orientation.

In other words, these countries are well-prepared for crises of any kind, be they of an economic, political or ecological nature.

It is no surprise to find Scandinavia, New Zealand, Switzerland, the core European countries (Germany, Holland), Australia, Great Britain and Canada among the countries leading the welfare indexes, but the USA, France, Belgium, Austria and Singapore also belong to this top group. We look for "safe assets," as we define them, within these countries (cf. Figure 5)

Figure 5:
The Legatum Institute Foundation (UK) prosperity index

2009 Rank	2018 Rank	2019 Rank	Country	Safety and Security	Personal Freedom	Governance	Social Capital	Investment Environment	Enterprise Conditions	Market Access and Infrastructure	Economic Quality	Living Conditions	Health	Education	Natural Environment
1	2	1	Denmark	5	2	3	2	6	7	8	8	1	8	3	10
3	1	2	Norway	2	1	1	1	2	9	15	12	7	5	11	7
4	3	3	Switzerland	1	12	7	8	13	3	7	2	4	3	12	5
2	4	4	Sweden	11	4	6	9	10	13	5	4	3	15	17	1
5	5	5	Finland	17	3	2	4	7	18	10	21	6	26	6	2
6	6	6	Netherlands	12	5	4	6	12	8	4	6	2	9	8	54
10	7	7	New Zealand	13	10	5	7	3	14	21	19	26	22	10	6
8	9	8	Germany	21	13	9	13	15	4	11	5	5	12	21	17
7	8	9	Luxembourg	3	8	8	21	22	16	2	7	9	19	33	9
9	11	10	Iceland	6	6	13	3	25	30	12	16	20	7	13	8
16	10	11	United Kingdom	16	15	11	14	4	6	9	15	8	23	15	24
14	12	12	Ireland	14	9	14	12	23	10	23	3	12	20	16	14
11	15	13	Austria	9	17	15	11	11	19	17	22	13	10	22	3
12	13	14	Canada	18	7	10	10	14	15	19	38	16	25	5	15
15	14	15	Hong Kong*	4	41	16	28	5	1	3	9	14	6	4	28
18	16	16	Singapore	7	95	25	18	1	5	1	1	10	1	1	91
13	17	17	Australia	26	14	12	15	9	21	29	31	21	18	9	19
17	18	18	United States	58	22	21	16	8	2	6	17	29	59	14	25
21	19	19	Japan	10	31	18	132	17	11	13	26	19	2	7	23

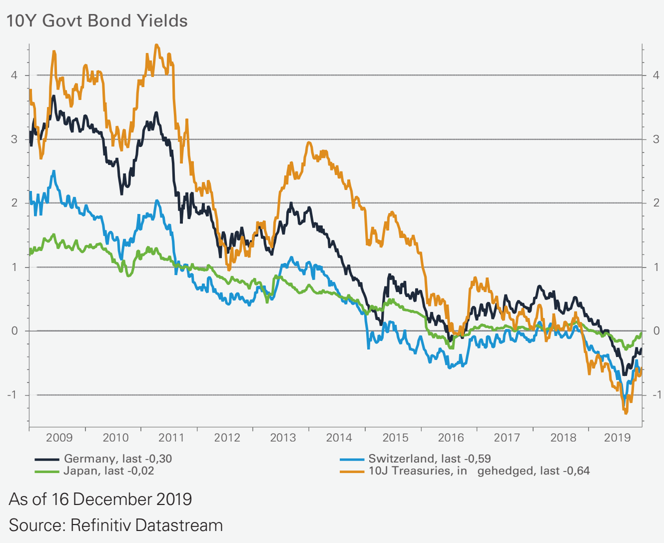
Status 2019
Source: Eleventh Edition; The Legatum Prosperity Index™ 2017; www.prosperity.com

Only bonds meet our liquidity, safety and simplicity requirements for "safe assets." While real property in our selected countries seems quite safe, it is not liquid, while equity shares are liquid, but not safe.

Bonds in two of the countries listed above—Switzerland and Japan—have even lower yields than German Bunds, making them unattractive as Bund alternatives. While government bonds in New Zealand, Australia, the US, the UK and Canada are safe and earn strong returns, they carry a high degree of currency risk (from the perspective of a Eurozone investor).

In order to make bonds from the latter group of countries "safe assets," the Euro investor would have to hedge the currency risk. However, this currency hedge is not only extremely expensive, but hedge costs are also very volatile and difficult to calculate in the long run if the currencies themselves are volatile. This makes bonds from countries with volatile currencies less attractive than German Bunds and limits their use as "safe assets" (cf. Figure 6).

Figure 6
Yields on 10-year government bonds



As of 16 December 2019
Source: Refinitiv Datastream

Most of what remains as a "safe asset" alternative to German Bunds and other bonds of core European countries are Scandinavian bonds. For investment considerations, Scandinavia refers primarily to Sweden, Denmark, Norway and Finland, while Iceland plays only a secondary role because of its relatively small size.

In a certain sense, Scandinavia as a region offers the "ultimate" security, a perfect combination of stability, flexibility and dynamism. For decades, conditions in Scandinavia have been stable, and the region is a genuine model of success.

Scandinavian countries have healthy government finances (low levels of debt and budget deficits, high country ratings), strong social cohesion and equality (low corruption, relatively equal income and financial conditions, strong trade unions, fully funded pension systems), flexible currencies and central banks, as well as an extremely healthy environment and abundant natural resource wealth.

The Scandinavian economies are also very dynamic. Scandinavian companies are frequently innovative leaders, and the region's job markets are very flexible. The Scandinavian countries' reputation as exporters signals openness and an orientation toward competitiveness. Finally, social policy encourages entrepreneurship.

Overall, Scandinavian fundamentals make this region seemingly unbeatable when it comes to security: high, dynamic growth paired with economic, political, ecological and social stability (cf. Figure 7).

Figure 7
Scandinavia in a nutshell

Norway	
Population (mln)	5.4
Unemployment	2.1 %
GDP	0.6 %
GDP per capita ($)	92,121
Debt/GDP	36.7 %
Defaults*	0
HDI**	1/189
Rating	AAA

Sweden	
Population (mln)	10.1
Unemployment	6.6 %
GDP	1.6 %
GDP per capita($)	57,232
Debt/GDP	35.6 %
Defaults*	0
HDI**	7/189
Rating	AAA

Denmark	
Population (mln)	5.8
Unemployment	3.1 %
GDP	2.2 %
GDP per capita ($)	62,931
Debt/GDP	34.6 %
Defaults*	0
HDI**	11/189
Rating	AAA

Finland	
Population (mln)	5.6
Unemployment	6.2 %
GDP	2.2 %
GDP per capita ($)	48,445
Debt/GDP	60.5 %
Defaults*	0
HDI**	15/189
Rating	AA+

Comparison:	France	Germany
Population (mln)	67.6	80.3
Unemployment	8.5 %	5.0 %
GDP	1.4 %	0.5 %
GDP per capita ($)	43,664	47,502
Debt/GDP	99.6 %	61.2 %
Defaults*	0	7
HDI**	24/189	5/189
Rating	AA	AAA

Sources: Bloomberg, CIA World Factbook, Datastream, Worldbank, OECD, Lazard Asset Management Research
Data as of 30 November 2019
* Defaults since 1800
** HDI = Human Development Index

As of 30 November 2019
Source: : Bloomberg, CIA World Factbook, Datastream, World Bank, Lazard Asset Management Research

The Scandinavian bond market

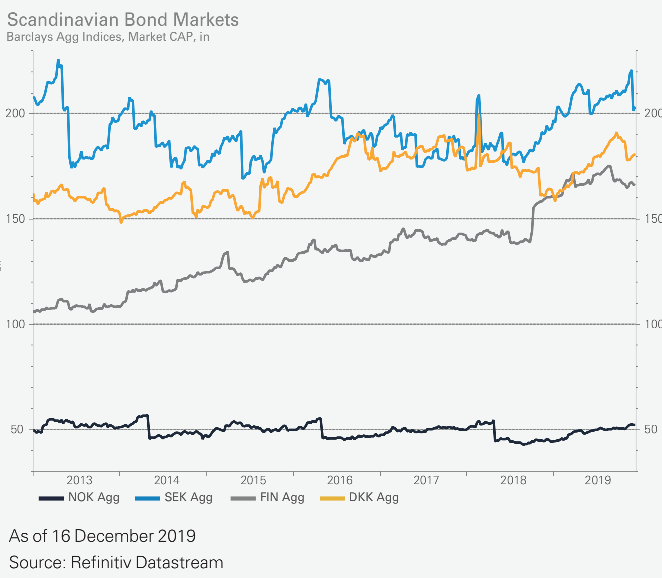
The Scandinavian bond market doesn't often attract attention, precisely because there aren't many attention-getting events or crises that shake up the market in the region. Yet the market is by no means small and offers some interesting features for investors. In our description, we limit ourselves to the four large markets: Denmark, Finland, Norway and Sweden.

The Scandinavian bond market amounts to approximately €1.7 trn when converted in € (as of the middle of 2018). The Danish bond market consists of approximately 4,300 billion Danish krone, including about 3,300 billion krone in Danish covered bonds and 800 billion krone in government bonds. The Finnish market has a capitalization of 271 billion euros, including approximately 102 billion euros in government bonds and €124 billion in several kinds of bank bonds (thereof €35 bn covered bonds).

The Norwegian market of 1,360 billion Norwegian krone includes 442 billion krone in covered bonds, 407 billion krone in government bonds and more than 390 billion krone in corporate bonds. In Sweden, the size of the market is 7,700 billion Swedish krona, including 2,800 billion krona in bank bonds, 2,000 billion krona in issues by home credit institutions, 1,000 billion krona in government and 1,600 billion krona of corporate bonds.[5]

To get a feel for the growth of the market over time, we look at the market capitalization of Scandinavian bonds in global bond indexes - in this case, the Barclays Global Aggregate, even though it shows only the most liquid bonds in each market. The fact that market volumes have been fairly stagnant is a positive sign for bond markets. It shows that debt is growing more slowly in the national economies, and scarcity implies a certain level of financial soundness for the bonds themselves (cf. Figure 8).

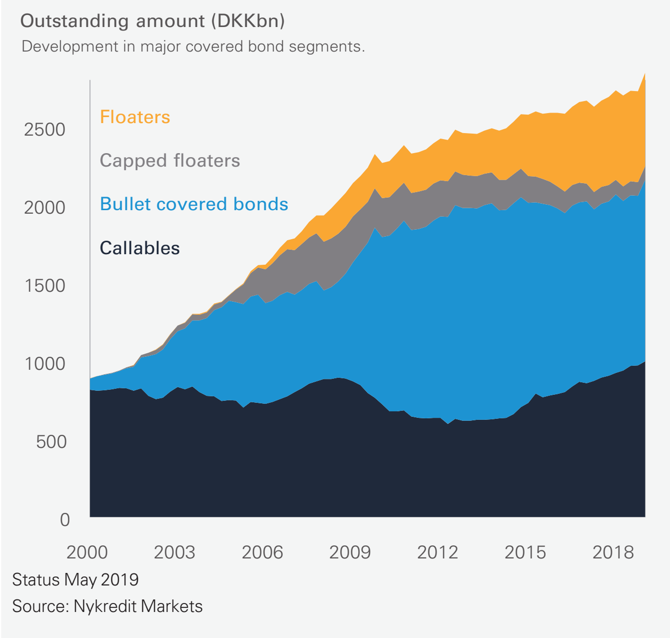
Abbildung 8
Market capitalization of liquid Scandinavian bonds



As of 16 December 2019
Source: Refinitiv Datastream

Danish covered bonds present a special case, which we will explain in the following section. These bonds are typically not included in global bond indexes because they have some features that are unique to the Danish market. The Danish mortgage bond market is the oldest and largest covered bond market in the world, four times larger than the market for Danish government bonds and especially interesting in a low interest-rate environment. A Danish covered bond has never defaulted in more than 200 years of mortgage bond history. Danish mortgage bonds are therefore a core element of any Scandinavian bond investment (cf. Figure 9).[6]

Figure 9
Market capitalization of Danish Covered Bonds



Status May 2019
Source: Nykredit Markets

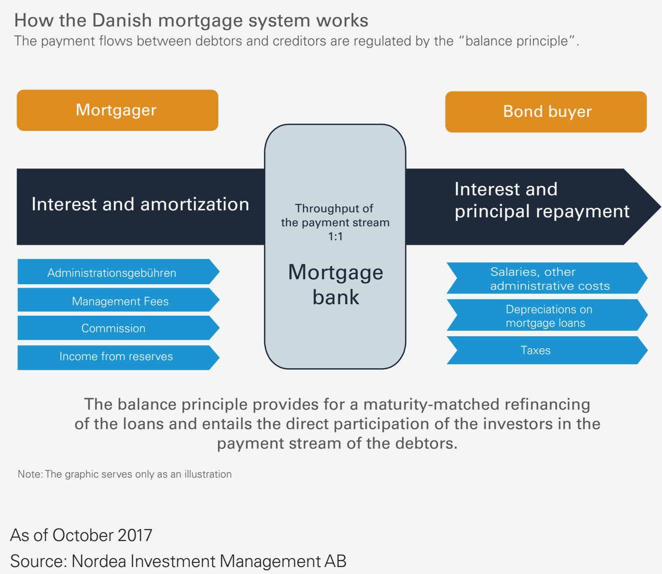
The Danish mortgage bond

In principle, Danish mortgage bonds are normal covered bonds with features similar to mortgage-backed bonds in Germany, France or Spain. They are covered, interest-yielding bonds issued by financial institutions for refinancing loans secured by mortgage liens. The core of the mortgage bond is its dual claim on the issuing mortgage bond bank on the one hand and the reserve fund, which mortgage creditors can tap if the mortgage bank goes bankrupt, on the other.[7]

There are two important features that differentiate the Danish mortgage bond from, for example, a German mortgage bond. The first is the so-called "balance principle." If a Danish mortgage bank grants a mortgage loan, it must refinance the loan immediately with a maturity-matched instrument on the capital market. The respective tranches and series of mortgage bonds with specific maturities, yields and repayment structures of each issuer are continually auctioned off for this purpose. The mortgage-backed bonds ultimately reflect the loan conditions of the mortgages.

Contrary to mortgage banks in all other covered bond markets, Danish mortgage banks do not engage in any maturity transformations. They act only as an intermediary between borrowers and capital market investors, though they do bear the credit risk for the bonds. They provide a guarantee for the bonds and collect fees and commissions for this service. Thus, those who invest in a Danish mortgage bond are directly involved in the payment stream of the mortgagor. The mortgage bank passes through interest and principal payments directly as amortization/pass-through (interest income and principal repayments) to the mortgage bond creditor (cf. Figure 10).[8]

Figure 10: **How the Danish mortgage system works**



As of October 2017
Source: Nordea Investment Management AB

The second feature unique to Danish mortgage bonds is particularly important for investors: Approximately one-third of all mortgage bonds securitize mortgages in which the debtor has the option on a quarterly basis to terminate or return the mortgage at par value without an early payment penalty and take out a new mortgage. These are the so-called Callables in Figure 9 - mortgage bonds with termination options. If some mortgages in a mortgage pool are terminated, the balance principle ensures that bond creditors see the change reflected immediately in the payment stream. Their investments are paid back on a prorated basis at par value, and thus called in.

Mortgagors typically exercise termination options when interest rates drop abruptly. By exchanging a mortgage with a high coupon for a new mortgage with a lower yield, the mortgagor saves enough in interest payments to more than pay for the fees and commissions from the mortgage exchange. Conditions have often made termination a favorable option for investors during the low interest-rate period of the last few decades.

Features and appraisal of Danish terminable mortgage bonds

Figure 9 shows that the Danish mortgage bond market consists, in three approximately equal parts, of normal mortgage bonds ("Bullet Covered Bonds"), mortgage bonds with a termination option ("Callables") and mortgage bonds with money-market yields ("Floaters," with or without CAP). Mortgage bonds with termination options are the most interesting segment for an international investor. The others are not an important alternative to mortgage bonds in other regions. Foreigners hold approximately 35% of the circulating paper in the Callables segment.[9]

Two important questions arise in connection with callable mortgage bonds:

- What makes mortgage bonds with a termination option attractive for investors?
- How do the termination rights of the borrower affect the yield on the mortgages and/or the coupons of mortgage bonds with termination options?

In a mortgage loan with a termination option, the borrower has the advantage of being able to terminate the loan and exchange it for a new loan with a lower interest rate, without incurring an early repayment penalty. In options lingo, he is "long the termination option" and pays an option premium for the termination right. The value of the termination option is rolled into the mortgage interest. The borrower thus pays a higher annual interest rate for the mortgage loan with a termination option than for the same loan without one. The value of this termination option has historically ranged from 1.5% - 2.5% per annum, which the borrower paid in extra interest charges. [10]

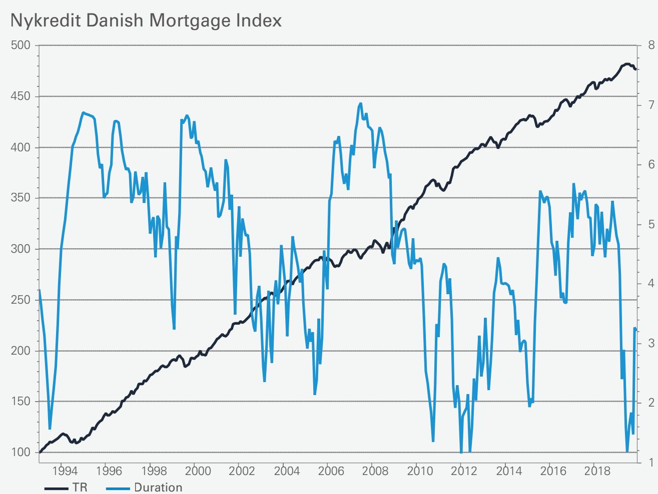
The buyer of a mortgage bond with a termination option is, to stay with the options lingo, short the mortgagor's termination options, and in return, collects the option premium in the form of a higher yield. If termination rights are exercised on mortgage loans held in the reserve fund of the purchased mortgage bond, the mortgage bonds are also paid back on a prorated basis via the balance principle. The mortgage bond buyer misses out on the higher yield of the mortgage bond compared to the current market interest rate (on a prorated basis) and also bears the reinvestment risk.

How are callable mortgage bonds priced? The appraisal of callables is based on a rather complex option price theory - after all, a whole basket of options is involved - which cannot be dealt with here in any detail.

However, a simple explanation may provide a general understanding. The instruments normally have maturities of 20-30 years, but because of the debtors' built-in termination rights, a certain likelihood is assigned to the probability that callables will be terminated early. The result is to greatly shorten the effective duration of the bonds, sometimes called the Option Adjusted Duration (OAD). The likelihood of an early termination by the issuer and the resulting cash flow of the mortgage bond, weighted according to that likelihood, are the main factors that drive the mortgage bond's pricing.

To price both the option and the mortgage bond and calculate the bond's actual duration, one must use Monte Carlo simulations or other "prepayment models" to calculate all conceivable scenarios for future interest-rate movements and how those movements would increase or decrease the number of borrowers who would be expected to terminate their mortgages. One must also calculate the cash flows that would result from these scenarios and the likelihood of the scenarios occurring. How likely is it that the interest rate drops by x% and what would then be the likelihood that y% of the borrowers terminate the mortgage, resulting in z% repayments? The potential cash flows of the bond, weighted with the probabilities of termination, determine the value of the financial construct (cf. Figure 11).

Figure 11: **Total Return and Duration of the Nykredit Danish Mortgage Index**



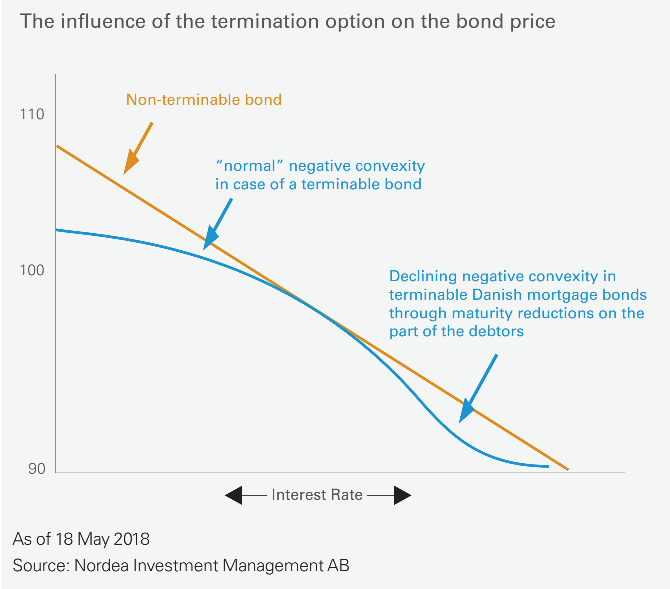
As of 16 December 2019
Source: Refinitiv Datastream

For a better understanding, let's look at a mortgage bond that has a yield close to market rate and is therefore priced at 100. If the interest rate drops, the mortgage bond increases in value because its higher yield becomes more valuable. On the other hand, the falling interest rate makes it more likely that some borrowers with mortgages securitized in the mortgage bond will repay their loans early, as expressed by partial repayments via the amortization in the mortgage bond. Thus, the actual duration of the terminable mortgage bond would get shorter. Falling interest rates lower the duration and interest rate sensitivity of the mortgage bond, and it profits less from price increases than a normal bond.[12]

If the interest rate rises, the mortgage bond depreciates. At the same time, it becomes less likely that borrowers will repay their mortgage loans early. This means that the actual duration of the mortgage bond is extended. Rising interest rates thus increase the duration and interest rate sensitivity of the mortgage bond - it suffers more from price declines than a normal bond.

This unfavorable feature of callables - duration falls with falling interest rates and rises with rising rates - is called a negative convexity or Option Adjusted Convexity (OAC). In return for the risk of this negative convexity, the buyer of mortgage bonds with termination rights receives option premia - or a much higher yield - than the buyers of mortgage bonds without a termination right. Mortgage bonds with termination rights give the investor a higher return than mortgage bonds without termination rights if the interest rate does not fall or rise too much (cf. Figure 12).[13]

Figure 12: **Bond price and termination option**



As of 18 May 2018
Source: Nordea Investment Management AB

Another noteworthy feature of terminable mortgage bonds is the so-called "delivery option" of the mortgagor. If the interest rate rises precipitously, the value of the terminable bond drops substantially because the exercise of the option becomes less likely and the duration of the mortgage bond increases. The mortgagors then have the option to redeem the series of the mortgage bond that matches their mortgage at a greatly reduced price, submit it to the bank and thus pay back their mortgage loan. (In this case the bank has the mortgage bond on the asset side of the balance sheet instead of the mortgage loan.)

Mortgagors acting as buyers help stabilize prices when interest rates rise sharply above a certain level, gradually reducing the actual duration and interest sensitivity of the mortgage bond. In other words, the negative convexity of the terminable bond declines again after interest rates rise above a certain threshold (cf. Figure 12).

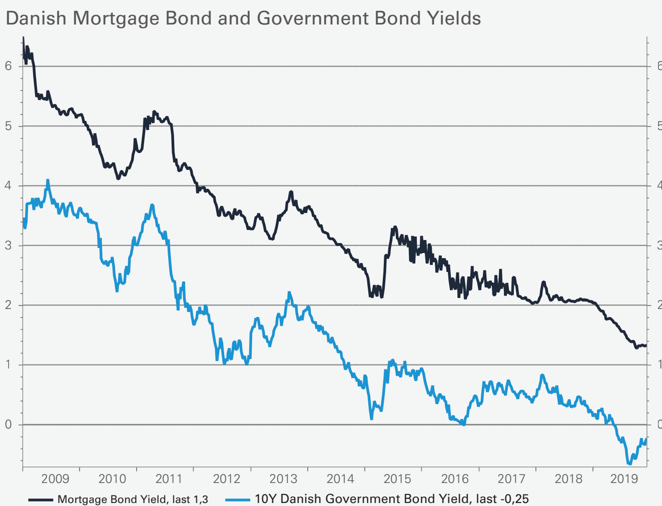
All this results in rather complex price behavior that depends on how changes in market interest rates affect the probability of terminations. The difference in behavior between at-the-money callables (coupon equal to the market interest rate), in-the-money callables (coupon below the market interest rate) and out-of-the-money callables (coupon significantly above the market interest rate) leaves much discretion for active management depending on interest rate expectations. Managers must analyze in great detail the price effects of the termination rights and the amortization outlook as a function of the interest rate development.[14]

A Scandinavian bond portfolio

Why do we spend so much time describing Danish mortgage bonds? As we see it, these terminable covered bonds should be an integral part of any Scandinavian bond portfolio, especially given their utility in a low interest rate environment.

The spread of approximately 1.5-2 percent due to the option premium represents an additional return over government bonds and regular mortgage bonds that has nothing to do with credit and credit risk, as the credits all have a AAA or at least a AA rating. Thus, the additional return is a spread that does not depend on the credit cycle and is also relatively independent from other risks investors may take to earn extra income. The spread is relatively high and quite stable relative to the general interest rate level, though the net yield in the Danish mortgage bond market dropped exactly as much as it did in all European bond markets over the last few decades (cf. Figure 13).

Figure 13: **Mortgage bond and government bond yields**



As of 16 December 2019
Source: Refinitiv Datastream

Yet, we do not consider a portfolio comprised solely of Danish mortgage bonds as the best way to gain exposure to "safe assets." Instead, we prefer a diversified Scandinavian bond portfolio that, while heavily weighted in favor of Danish mortgage bonds, includes in the investment universe all Scandinavian investment grade bonds either listed in Scandinavian currencies or issued by Scandinavian issuers ("Scandinavian High Quality").[15]

We justify limiting the share of Danish mortgage bonds by saying that we want to limit exposure to the Danish property market as a risk factor through diversification. Despite the large volume and high liquidity of Danish mortgage bonds, there are only six issuers, of which three (Nykredit, Realkredit and Nordea) make up more than 80% of the market. This makes it nearly impossible for investors to diversify by issuer in the Danish mortgage bond market.

At present, our Scandinavian High Quality investment strategy has the following characteristics:

Investment strategy overview

- Investment focus: Scandinavian fixed income securities
  - Scandinavian bonds in local & hard currency
  - Global bonds in Scandinavian currencies
- Well suited for a "decade of stable/rising rates" – yield premium of DKK covereds with substantially reduced negative convexity
- Investment universe app. USD 2,000 bn
- Investment in local and hard currency bonds of highest credit quality (average rating AA+, minimum bond rating BBB-)
- Allocation to government bonds, agencies (SSA), corporate bonds, and covered bonds
- Investment across the entire capital structure (i.e. covered bonds to subordinated bonds)
- Active management of:
  - FX exposure
  - Credit risk
  - Interest rate risk

Source: in-house calculations, as of 30 November 2019

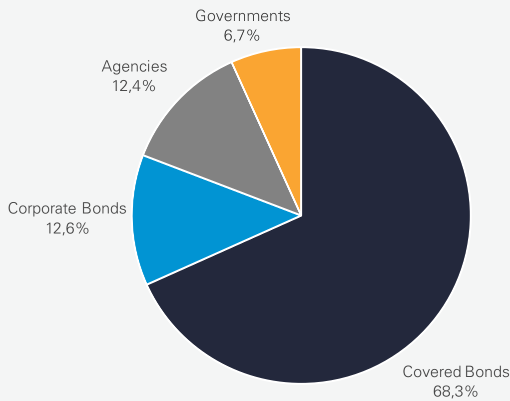
Portfolio indexes

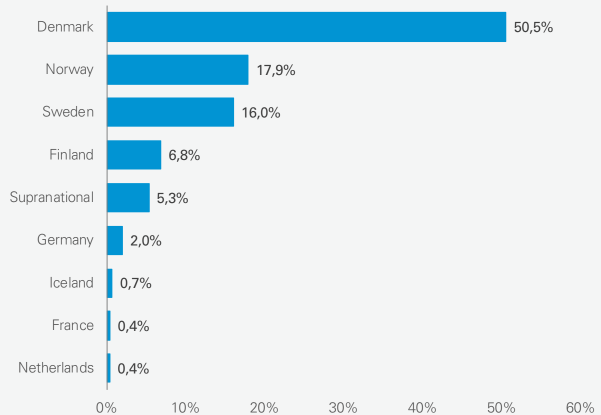
Number of single positions:	88
Countries	9
Currencies	4
Average rating:	AA+/Aa1
Portfolio duration:	1.49
Coupon:	1.44 %
Yield (unhedged FX):	1.18 %

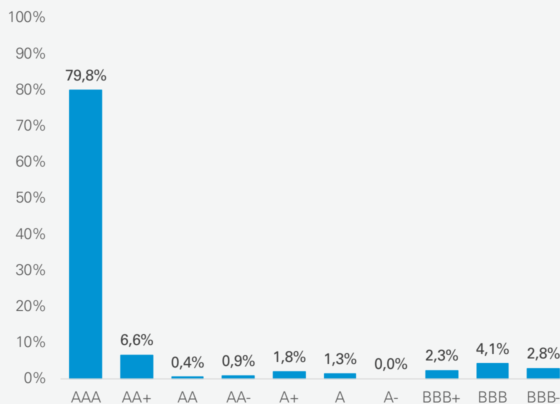
Source: in-house calculations, as of 30 November 2019

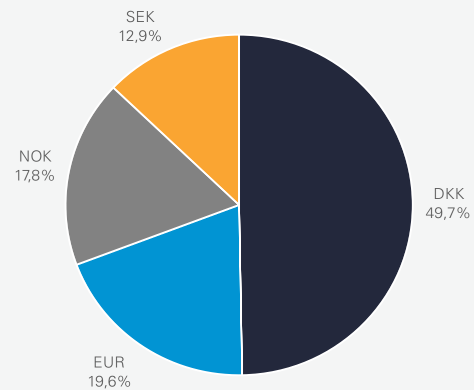
Figure 14 shows the more precise composition and characteristics of such a portfolio.

Figure 14
Composition of a Scandinavia strategy









As of 30 November 2019
Source: Lazard, Bloomberg

This "Scandinavian High Quality" portfolio offers, in our opinion, an unbeatably attractive risk/return relationship and a relatively high degree of safety in times of crisis, thanks to the AA rating, a reasonable return and high liquidity. This should be particularly interesting for Eurozone investors (and investors of other low yield regions), as the issuers are outside both the political uncertainties of the Eurozone (with the exception of Finnish bonds) and the reach of the ECB, but still generate a coupon of more than 1 percent. Anyone who fears rising rates and wants to reduce the interest rate risk of the base portfolio can systematically shorten the duration of the portfolio using derivatives. We call this a "Scandinavian High Quality Short Duration" strategy.

Summary and Outlook

In the ten years since the global financial crisis began, the world's largest central banks have dominated the global economy and capital markets through unconventional monetary policy, including the purchase of government bonds, corporate bonds and covered bonds. In doing so, they mitigated crises, propped up asset prices and generated multiple asset bubbles. This philosophy of keeping interest rates "lower for longer" and expanding the balance sheet has been refacedin the cause of 2019 (after a short interruption in H2/2018 and H1/2019).

On the other hand, most asset classes are highly valued, the interest rate is very low and many problems and risks remain unresolved since the crisis. The policies US President Donald Trump has advanced with regard to trade, currencies and the political world order is a huge risk. The unresolved problems of the Eurozone (Italy, Greece, the bank union, refugee policy), the advance of authoritarian politics and populism also pose sizable risks to financial markets. We therefore believe that investors who gradually reduced the

amount of "safe" assets over the last decade should once again build up their exposure.

Since there are no "safe assets" in the absolute sense, we are interpreting the concept loosely. "Safe assets" do not guarantee a positive return under any scenario.

Rather, we look for liquid capital investments that would survive "on their own" under most risk scenarios and have a low correlation to risky assets in extreme crisis situations, making them a true source of diversification to risky assets and illiquid investments within a portfolio. "Safe assets" should also yield a certain minimum return and should be simple, transparent and low in cost. The universe of such investments is very limited.

After considering this matter in depth, we consider only Scandinavian bond investments—those issued in Sweden, Denmark, Norway and Finland in Scandinavian currencies or EUR—as "safe asset" alternatives to German Bunds and other European core bonds. Scandinavia as a region offers the "ultimate" security: a perfect combination of stability, flexibility, dynamism and bonds with reasonable yields.

The Scandinavian bond market doesn't normally attract much attention, precisely because there aren't many attention-getting events or crises that shake up the market in the region. Yet, the market is by no means small and offers some interesting features for the investor. The Scandinavian bond market amounts to about €1.7 trn. when converted.

Danish mortgage bonds are the only bond segment in Scandinavia that will be novel for Eurozone investors. It consists, in three more or less equal parts, of normal mortgage bonds ("Bullet Covered Bonds"), mortgage bonds with a termination option ("Callables") and mortgage bonds with money market interest rates ("Floaters," with or without CAP). Mortgage bonds with a termination option are the most interesting to international investors, who hold 35% of the circulating paper in the segment.

Danish mortgage bonds with a termination option are highly attractive as part of Scandinavian bond portfolios, particularly in a low interest-rate environment. The spread of approximately 1.5-2 percent due to the option premium is additional return that has nothing to do with credits and credit risk. In fact, the bonds all have an AAA or at least an AA rating. The spread is relatively high and quite stable relative to the general interest rate level, though net returns in the Danish mortgage bond market have fallen by the same amount as returns in all European bond markets over the last few decades.

Yet, we do not consider a portfolio comprised solely of Danish mortgage bonds as the best way to gain exposure to "safe assets." Instead, we prefer a diversified Scandinavian bond portfolio that, while heavily weighted in favor of Danish mortgage bonds, includes all Scandinavian investment grade bonds listed either in Scandinavian currencies or by Scandinavian issuers ("Scandinavian High Quality") in the investment universe.[15] A portfolio comprised solely of Danish mortgage bonds with termination options would be over-concentrated on the Danish property market and on only a few issuers.

In our opinion, a "Scandinavian High Quality" portfolio offers an almost unbeatably attractive risk-return trade-off and a relatively high degree of security in times of crisis, thanks to its AA rating, reasonable return and high liquidity. This should be particularly interesting for euro zone investors, as the investment is outside both the political uncertainties of the euro zone and the reach of the ECB, but still carries a coupon of more than 1 percent.

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List of References

1 Committee on the Global Financial System: Financial stability implications of a prolonged period of low interest rates, CGFS Papers No 61, July 2018.

2 W. Denyer et al: Towards a Global Liquidity Crisis?, GavekalResearch, Strategy Monthly, August 2018.

3 P. Edwards et al: European Asset Allocation Survey 2018, Mercer LLC, August 2019.

4 P. Stroud: The Legatum Prosperity IndexTM 2019, Eleventh Edition, 2019.

5 U.K. Hansen: Nordic Covered Bonds 2019-2020, Nordea Marketing Material, September 2019.

6 J. Skinhoj et al: Danish Covered Bonds, Nykredit markets, White Paper, May 2019.

7 W. Krämer: More security in times of extreme uncertainty - The globalization of the German mortgage bond, Lazard Asset Management, Standpunkt, March 2017.

8 NN: Continue to generate positive returns with very safe bonds (European covered bonds and Danish mortgage bonds), Presentation, Nordea Asset Management, October 2017.

9 J.W. Ostergard: Outlook 2018 - Reading the Markets Denmark, Danske Bank, Investment Research, December 2017.

10 C. E. Falch: Danish Covered Bond Handbook, Danske Bank, September 2017.

11 J. Xue: Pricing Callable Bonds, Uppsala University, Thesis in Mathematics, December 2011.

12 nn: Development of Danish mortgage-backed bonds in the current interest rate environment, Nordea, In Focus, May 2015.

13 nn: The Danish mortgage bond market and the Danish economy Review 2017, Outlook 2018, Nordea in Focus, January 2018.

14 J. Skinhoj, loc.cit.

15 M. Weidner et al: Lazard Scandinavian High Quality - Attractive return with highest rating, Presentation documents, December 2019.

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