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**Clearing and Settlement in a Legal
Perspective**

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Abstract

This paper describes how the two most important clearing and settlement systems in Denmark, VP and the Sumclearing, function in practice. Furthermore, it analyses how the legal framework in the Securities Trading Act, STA, based on directive 98/26/EC on settlement finality in payment and securities settlement systems, functions in relation to the functionality of VP Settlement and the Sumclearing. The functionality for both systems encompasses net settlement (multilateral netting).

The description of the two systems explains not only the multiple batch processing in the systems, but also the systems' terms and conditions and the cash settlement at Danmarks Nationalbank. The conclusion is that both systems have entered into fully valid and binding agreements on multilateral netting with their participants according to the requirements in STA. Furthermore, the times when transfer orders become binding and irrevocable are identified.

In a separate section the important link established between VP Securities Services and Euroclear in Belgium is described, including an elaboration of the cross-system settlement of trades between participants in VP Securities Services and Euroclear, whereby Danish book-entry securities are electronically "moved" to Belgium or back again.

Finally the paper analyses what actually happens in the event that a participant in VP settlement or the Sumclearing is declared insolvent. The conclusion is that both VP settlement and the Sumclearing are structured in such a way that the legal and practical consequences of a participant's insolvency are predictable in all standard cases. This is vital to ensuring that the other participants can adapt to the new situation.

The bibliography contains a list of relevant websites, and a glossary of some of the most important terms in the paper has been compiled.

Clearing and settlement in a legal perspective

1. Introduction

This article describes the two best known and systemically important clearing and settlement systems in Denmark: VP Settlement, which is a securities settlement system, and the Sumclearing, which is a payment system. Furthermore, the legal implications of the systems' structures are analysed¹.

Systemic risk is typically defined as the risk that a financial institution's non-fulfilment of its obligations when they fall due entails that other financial institutions cannot duly meet their obligations either. Both payment systems and securities settlement systems with a certain market share in terms of the value and number of transactions may involve major credit and liquidity risks to participants, and consequently they are described as systemically important.

Clearing comprises settlement of obligations and rights prior to an agreed exchange of services, while settlement is the exchange of services in fulfilment of the parties' obligations².

In this article, VP Settlement shall solely be taken to mean clearing and settlement of securities transactions, since periodic settlement of e.g. interest, dividend and repayments is not discussed.

VP Settlement is operated by VP Securities Services, VP³. VP's most important tasks are to undertake electronic issuance of securities, book-enter ownership and rights, and undertake clearing and settlement of securities transactions⁴. This article focuses on the latter function only.

VP Settlement is a clearing system with net settlement⁵ (multilateral netting) of both the cash and securities legs, i.e. all payments to and from participants are added up to make one payment per participant per cycle, which is settled via the participants' VP settlement accounts at Danmarks Nationalbank, and likewise the net impact of the approved transactions is entered to the relevant securities accounts at VP as one item per securities ID code.

The Sumclearing is undertaken by the Danish Bankers Association with PBS A/S, PBS⁶, as the operator. In the Sumclearing, compiled net positions between participants are cleared and settled on

¹ Although the two systems are called, respectively, the *Sumclearing* and *VP Settlement*, both systems comprise both clearing and settlement.

² See also the definitions in s. 50(1) and (2) of the Danish Securities Trading Act. Hereinafter the Securities Trading Act, Consolidated Act no. 1269 of 19 December 2003 as amended, will be referred to as STA.

³ VP has a de facto monopoly on issuance and custody of securities as defined in STA s. 59, i.e. negotiable dematerialised assets, listed as unlisted, and settlement thereof. Likewise, foreign securities may be issued and held as assets at VP. For further information, see www.vp.dk.

⁴ In 2003 the nominal transaction value in VP was kr. 31,056 billion for bonds and kr. 397 billion for equities, and the number of transactions was, respectively 1.6 million and 4.6 million. The market value of the bond and equity turnover was, respectively, kr. 27,973 billion and kr. 1,420 billion. At end-2003 the total nominal volume of bonds issued was kr. 2,447 billion and the total nominal volume of equities issued was kr. 344 billion. The market value was, respectively, kr. 2,569 billion and kr. 1,034 billion. For further data, see www.vp.dk.

⁵ Outside the VP settlement cycles, between 7.00 a.m. and 3.30 p.m., it is possible to perform gross settlement: first VP checks whether the seller has cover for the reported sale, and the securities are reserved while a check for adequate cover for payment is performed on the buyer. If the checks are positive, the transaction is settled via simultaneous entry to the relevant securities and cash accounts. The transaction takes effect when it has been irrevocably submitted, cf. section 3.1.3. Gross settlement will not be discussed further in this article, but will, however, be touched upon in the descriptions of VP Settlement and the Sumclearing.

⁶ For further information about PBS, see www.pbs.dk.

the basis of electronic clearing and PBS clearing⁷. Electronic clearing comprises retail transactions in banks involving accounts with other banks in which the debit transactions include e.g. cheque and debit card transactions, while the credit transactions include e.g. inpayment forms. PBS clearing comprises retail transactions based on PBS products, e.g. BetalingsService (direct debit) and Dataløn, as well as Dankort transactions⁸.

Like VP Settlement, the Sumclearing is a clearing system with net settlement (multilateral netting), i.e. all payments to and from participants are added up to make one payment per participant per cycle. The payments are settled via the participants' Sumclearing settlement accounts at Danmarks Nationalbank⁹.

1.1 Purpose and scope

The purpose of this article is to describe how VP Settlement and the Sumclearing function in practice and to analyse how the legal framework of STA, part 18 (particularly s. 57 and ss. 57c-57e), which applies to such systems, functions in relation to the functionality of VP Settlement and the Sumclearing.

A number of closely related areas will therefore not be discussed in the article.

Firstly, VP's registration activities, which are subject to extensive regulation under Title IV of STA relating to registration (ss. 59-82)¹⁰, as well as the legal status of registration of securities in a VP account¹¹ are not discussed.

In Denmark, an investor typically has an account controller that administers the investor's VP account. The account controller is usually a bank. This bank is not a custodian, and the investor owns the securities registered in its VP account directly. In principle the investor therefore does not incur any insolvency risk on the account controller or VP. This structure, which is also known in the other Scandinavian countries, is exceptional¹². As regards the option

⁷ The Sumclearing solely comprises clearing undertaken by PBS on behalf of the Danish Bankers Association and settlement at Danmarks Nationalbank. Electronic clearing and PBS clearing are not comprised.

⁸ According to *Finansanalyse 13*, Pengeinstitutternes åbne infrastruktur (The banks' open infrastructure – in Danish only), Danish Bankers Association, September 2001, more than 800 million transactions pass through the Sumclearing every year, with a total transaction volume of more than kr. 4,200 billion. The analysis can be downloaded from the website of the Danish Bankers Association, www.finansraadet.dk.

⁹ This is in contrast to e.g. KRONOS, which is Danmarks Nationalbank's real-time gross settlement (RTGS) system for krone and euro payments. RTGS systems enable participants to execute online payments from their own accounts to other participants' accounts. Gross amounts in Danish kroner can be transferred between banks via KRONOS between 7.00 a.m. and 3.30 p.m. Individual transactions are settled to the accounts finally and in real time, which in principle eliminates the recipient's credit risk.

¹⁰ See e.g. Peer Schaumburg-Müller, *Dansk Børsret, 2. del, Værdipapirhandelsretten* (Danish securities law, part 2, securities trading law - in Danish only), 2003, chapter 6 and Paul Krüger Andersen and Nis Jul Clausen, *Børsretten* (Securities law - in Danish only), 2nd edition 2003, chapter 4, section 7.

¹¹ Securities registered in an account as the only proof of ownership are often referred to as electronic securities or book-entry securities. Book-entry securities comprise both securities that have been electronic, i.e. dematerialised, from the outset, e.g. issued directly in VP, and immobilised securities, where e.g. a physical global note deposited with a custodian forms the basis of subsequent electronic registration of ownership of this global note.

¹² Naturally, financial investors in other countries cannot accept having only a contractual claim on a custodian or Central Securities Depository, CSD, in the event of insolvency, and since most countries have their own regimes in this area, a number of harmonisation initiatives have now been launched. UNIDROIT has begun to work on an international convention, and in August 2003 a study group set up by UNIDROIT presented its first position paper, Harmonised Substantive Rules Regarding Indirectly Held Securities. For further information on UNIDROIT and this new initiative, see www.unidroit.org. At EU level, the Giovannini Group in its Second Report on EU Clearing and Settlement Arrangements, April 2003, proposed an EU Securities Account Certainty project with a view to preparation of a statutory instrument in this area. The Report can be downloaded from www.europa.eu.int/comm/economy_finance/giovannini_en.htm. The project is supported by, *inter alia*, the European Financial Markets Lawyers Group, EFMLG, a group established under the auspices of the European Central Bank,

to hold customers' securities in the same account (omnibus account), see the special provision of the Financial Business Act, Consolidated Act no. 686 of 25 June 2004, s. 72(3) and (7) (previously STA s. 6(3) and (4)), which is discussed in e.g. Ulrik Rammeskov Bang-Pedersen, *Internationale aspekter af insolvens- og tingsretten* (International aspects of insolvency and property law – in Danish only), 2002, section 6.2.3.

Secondly, the provisions on company requirements and authorisation for securities clearing business, cf. STA part 3 (ss. 7-15), and the provisions on clearing business in part 15 (ss. 50-53), participation in part 16 (s. 54) and risk cover (right of collateral) in part 17 (ss. 55-56) will not be discussed¹³, apart from the specific provisions on clearing and settlement to be laid down by VP under s. 52, and the participation agreements that VP must conclude with participants relating to their rights and obligations under s. 54(1).

Nor will the provisions for registration of a payment system in STA s. 57a be discussed, apart from the specific provisions for the Sumclearing that the Danish Bankers Association must lay down under s. 57a(2) and the participation agreements that the Danish Bankers Association must conclude with participants relating to their rights and obligations, also under s. 57a(2).

Furthermore, the special provisions of STA s. 57b on rendering null and void or realising collateral pledged to Danmarks Nationalbank, clearing centres, payment systems or participants therein will not be discussed.¹⁴

Last, but not least, Danmarks Nationalbank's oversight task will not be discussed.

All over the world, central banks have been assigned the task of overseeing payment and securities settlement systems with a view to contributing to their stability and efficiency¹⁵. Oversight differs from financial supervision in that it is aimed at the system as such, not the legal entities that are part of the system (operator, participants, etc.). Oversight typically takes place in accordance with internationally approved standards and recommendations. Danmarks Nationalbank oversees VP Settlement and the Sumclearing on the basis of, respectively, Recommendations for Securities Settlement Systems, November 2001 issued by the International Organisation of

ECB, see the report Harmonisation of the legal framework for rights evidenced by book-entries in respect of certain financial instruments in the European Union, June 2003, which is available at www.efmlg.org. The European Commission indicated in its second communication to the Council and the European Parliament on clearing and settlement in the EU, Clearing and settlement in the European Union – The way forward, COM (2004) 312 of 28 April 2004, that it would set up a working group to implement the Giovannini Group's proposed EU Securities Account Certainty project. The communication was published for public consultation with 30 July 2004 as the deadline for comments. The Commission is expected to reach a final decision during 2005. The communication is available at www.europa.eu.int/comm/internal_market/en/finances/mobil/clearing/index.htm.

¹³ For further information, see e.g. Peer Schaumburg-Müller, *Dansk Børsret, 2. del, Værdipapirhandelsretten* (Danish securities law, part 2, securities trading law - in Danish only), 1st edition 2003, chapter 5 and Paul Krüger Andersen and Nis Jul Clausen, *Børsretten* (Securities law - in Danish only), 2nd edition 2003, chapter 4, sections 3 and 6.

¹⁴ For further information, see e.g. Niels C. Andersen and Kirsten Gürtler, The Provision of Collateral to Danmarks Nationalbank in a Legal Perspective, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2003.

¹⁵ In Europe current focus is on the stability and efficiency of clearing and settlement of securities in particular, not least cross-border securities, which is illustrated by a number of reports including (1) the Giovannini Group, Second Report on EU Clearing and Settlement Arrangements, April 2003, and its predecessor Cross-Border Clearing and Settlement Arrangements in the European Union, November 2001, (2) The European System of Central Banks, ESCB, and the Committee of European Securities Regulators, CESR, Consultative Report, Standards for Securities Clearing and Settlement Systems in the European Union, July 2003, see www.cesr-eu.org or www.ecb.int, (3) the Commission's second communication to the Council and the European Parliament, Clearing and settlement in the European Union – The way forward, COM (2004) 312 of 28 April 2004, and its predecessor, Clearing and settlement in the European Union, Main policy issues and future challenges, COM (2002) 257 of 28 May 2002, and (4) Clearing og oppgjør i Norden – særlig om forholdet til Giovannini-rapporten av november 2001 (Clearing and settlement in the Nordic countries – especially in relation to the Giovannini report from November 2001 – in Norwegian only), a report prepared under the auspices of the Nordic Council of Ministers, January 2004, see www.odin.dep.no/fin/norsk/publ/utredninger/andre/index-b-n-a.html.

Securities Commissions, IOSCO, and the Bank of International Settlements, BIS, and the Core Principles for Systemically Important Payment Systems, January 2001 issued by BIS¹⁶.

Both the Sumclearing and VP Settlement take place in Danish kroner and euro¹⁷, but the following is based solely on settlement in Danish kroner since the principles are the same for both currencies.

1.2 Structure

Section 2 contains a description of the relevant legal provisions for clearing and settlement, based on the directive on settlement finality in payment and securities settlement systems, 98/26/EC, which has been implemented into STA's part 18 on payment systems, netting etc.

Section 3 contains a description of VP Settlement and the Sumclearing, including the contractual basis and pledging of collateral, liquidity and cash settlement at Danmarks Nationalbank, and the functionalities of VP Settlement and the Sumclearing are compared with the legal provisions described in section 2.

Section 4 focuses on VP Settlement in relation to the important link established between VP and Euroclear, EOC, in Belgium¹⁸.

Section 5 focuses on the consequences to the two systems if a participant is declared bankrupt.

Section 6 is a bibliography with relevant websites.

Section 7 is a glossary of some of the key concepts used in the article.

2. Legal provisions¹⁹

Directive 98/26/EC on settlement finality in payment and securities settlement systems was adopted in May 1998 under Article 100A (now 95) of the EC Treaty with a view to smooth operation of arrangements for cross-border payments and securities settlement within the Community²⁰. In order

¹⁶ Both are available at the BIS website, www.bis.org. In connection with its oversight of the Sumclearing, Danmarks Nationalbank has prepared a report, Review of the Sumclearing in relation to Core Principles for Systemically Important Payment Systems, May 2002, which is available at www.nationalbanken.dk, under Tasks, Payment systems. For further information on Danmarks Nationalbank's oversight, see the article Oversight of Payment and Securities Settlement Systems, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 2001, which is available at Danmarks Nationalbank's website under Publications. Danmarks Nationalbank has concluded a Memorandum of Understanding with the Danish Financial Supervisory Authority laying down the framework for the parties' collaboration in relation to payment systems and securities settlement systems.

¹⁷ Settlement of periodic payments in VP can take place not only in Danish kroner and euro, but also in Swedish kronor and Icelandic kronur. The latter two currencies relate to links to the respective CSDs, VPC (Sweden) and VS (Iceland), since VP distributes periodic payments to VP investors holding Swedish or Icelandic securities via these links. Furthermore, a number of issues of Swedish securities are registered directly in VP and listed on the Copenhagen Stock Exchange. The link to Euroclear, EOC, has not resulted in periodic VP settlements in other currencies since it is a one-way link from VP to EOC. This means that securities registered in VP can be "transferred" electronically to EOC via EOC's omnibus account at VP and can thus be held and traded in Belgium, while transactions in the opposite direction are not possible, cf. section 4.

¹⁸ EOC and Clearstream Luxembourg are the only two International Central Securities Depositories, ICSDs, in the EU. VP has also established a link to Clearstream Luxembourg, but that will not be discussed in this article. Compared with a Central Securities Depository, CSD, such as VP, an ICSD is characterised by clearing and settling international securities or cross-border transactions in local securities via links to local CSDs. The market value of the transaction volume for all types of securities in EOC was 118.1 trillion euro in 2003. In VP the equivalent figure is just under kr. 30,000 billion. See www.euroclear.com for further information on EOC.

¹⁹ As stated in section 1.1, STA s. 57a on registration of payment systems and STA s. 57b on pledging of collateral will not be discussed.

²⁰ For further details, see Peter M. Restelli-Nielsen and Ulla Sterkel, The Finality Directive, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 1998. This Directive was implemented in Danish legislation via Act No. 283 of 26 April 2000, which entered into force on 1 May 2000. For further information on the Danish implementation, see Christian

to limit system-related risk, the Directive mainly focuses on two issues, viz. the finality of settlement in such systems, and the option to satisfy claims by realising collateral²¹, irrespective of a participant's possible insolvency. In addition, a conflict of laws rule regarding property law was introduced for dematerialised securities.

The conflict of laws rule in Article 9.2 of the Directive applies only within the scope of the Directive, but the explanatory notes to the Danish implementation act, Act no. 283 of 26 April 2000, state that the conflict of laws rule in the Directive is a codification of existing Danish law as described in the legal literature, for which reason the opposite cannot be assumed to apply outside the scope of the Directive. See also the conflict of laws rule in the Directive on financial collateral arrangements, 2002/47/EC, Article 9, which extends the scope of the conflict of laws rule to the scope of this Directive²². After implementation of the latter Directive via Act No. 1171 of 19 December 2003, the conflict of laws rule regarding property law has, as from 1 January 2004, been placed in a separate part 18b of STA, which contains only one provision, s. 58n. The wording and structure of the provisions in the two Directives are somewhat different, but according to Preamble 7 to the Financial Collateral Directive there is no doubt that the intention has been to state the same criteria for applicable law, viz. specification of the *lex rei sitae* principle to the venue where the relevant securities account is held. It is naturally debatable whether it is a simple matter to decide where an account is held, including the decisive factors determining where an account is believed to be held. The Hague Convention on the Law Applicable to Certain Rights in Respect of Securities Held with an Intermediary, which was finally negotiated on 13 December 2002, but which has not yet been ratified by Denmark or the EU, seeks to provide a more detailed solution to the conflict of laws issue at the global level, and when adopted the Convention is likely to result in amendments to the conflict of laws rules in both the Settlement Finality Directive and the Financial Collateral Directive, and likewise s. 58n will be amended²³.

The Directive is thus not aimed at protecting system participants, but at protecting the system itself against the consequences of a participant becoming insolvent. This is achieved by stipulating that transfer orders and netting²⁴ shall be legally enforceable and shall be binding on third parties even in the case of insolvency proceedings²⁵ against a participant, provided that the transfer orders were entered into the system before the moment of opening of such insolvency proceedings, cf. Article 3.1²⁶. This prevents the insolvent estate from intervening in the settlement by relying on the rules on adoption of contracts, cf. part 7 of the Danish Insolvency Act on bilateral agreements, by e.g. adopting certain transactions that have proved to be favourable and repudiating the rest.

Dahl Hesthaven, Netting i et insolvensretligt perspektiv (Netting in relation to insolvency law – in Danish only), *Rettid 2002*, Thesis 6, pp. 14ff. This article is available at www.rettid.dk.

²¹ Pledging of collateral with a view to procuring settlement liquidity is normal and typically takes place under the auspices of Danmarks Nationalbank. See sections 3.1.2 and 3.2.2 and Niels C. Andersen and Kirsten Gürtler, Provision of Collateral to Danmarks Nationalbank in a Legal Perspective, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2003.

²² The Financial Collateral Directive is based on Article 95 of the EC Treaty. Its objective is to support effective use of cross-border provision of collateral for bilateral accounts. As a minimum the Directive applies to all financial institutions, including central banks. Concerning the Danish implementation, see the explanatory notes to Bill No. 11 of 8 October 2003 on implementation of the Financial Collateral Directive.

²³ For further information about the Convention, see the website of the Hague Conference, www.hcch.net, with reference to Convention no. 36 and the explanatory notes to Bill No. 11 of 8 October 2003 on implementation of the Financial Collateral Directive.

²⁴ The Directive assumes that positions between participants in a system are netted, and as a starting point a system must have at least three participants, cf. Article 2.1(a) of the Directive, for which reason the Directive assumes netting to be multilateral netting.

²⁵ In the Danish implementation, the Directive's definition of insolvency proceedings, cf. Article 2.1(j), has been interpreted to mean insolvent winding-up, suspension of payments and compulsory composition.

²⁶ However, the Directive does not provide protection against avoidance outside the system, i.e. an otherwise voidable securities transaction or payment is not protected against avoidance merely because the transaction has been finally concluded in the system and is executed despite the insolvency of a participant in the intervening time, cf. Preamble 13 to the Directive.

Article 3.3 stipulates that the rules of the system in question shall determine the moment of entry of a transfer order into a system. In addition, Article 5 stipulates that a transfer order may neither be revoked by a participant nor by a third party²⁷ from the moment defined by the rules of that system.

Article 6.1 stipulates that the moment of opening of insolvency proceedings shall be the moment when the relevant judicial or administrative authority hands down its decision²⁸.

Furthermore, Articles 6.2 and 6.3 of the Directive stipulate a notification procedure, whereby a member state must ensure that the other member states are immediately notified of any insolvency proceedings against a participant in a registered system. Originally these provisions were not implemented in Danish law since public authorities in Denmark must be assumed to meet their obligations under a directive in any case, but in connection with the implementation of the Financial Collateral Directive with effect from 1 January 2004 a specific provision has now been inserted in STA s. 57d(3) to the effect that the bankruptcy court must notify the Danish Financial Supervisory Authority, which must then immediately notify the other member states as well as any countries with which the Community has concluded agreements, e.g. the EEA countries. Oddly enough the new provision applies only to participants in systems comprised by STA s. 57d(2), i.e. Danish systems registered with the European Commission, although the other member states must be assumed to be far more interested in knowing whether Danish participants in their registered systems are subject to insolvency proceedings.

Since 1 January 1996 Danish legislation has contained a provision, STA s. 57, on multilateral netting in relation to securities settlement systems and payment systems²⁹, under which an agreement concerning multilateral netting may, with legal effect on the estate and the creditors, include a provision to the effect that the claims submitted to the system must be finally settled or reversed in full³⁰ in the event that one of the parties is subject to an insolvency order or files for suspension of payments or proceedings for compulsory composition are opened. The only preconditions are that the Danish Financial Supervisory Authority is notified of the agreement and that it includes objective conditions for when claims are either satisfied in accordance with the netting agreement or reversed in full³¹.

In connection with the Danish implementation of the Settlement Finality Directive these conditions were not amended. However, in connection with the implementation of Articles 3.3 and 5 in STA s. 57c it was specified that the rules of a securities settlement system or payment system must state when a transfer order is considered to be entered into the system and the point(s) in time when a transfer order that has been entered in the system can no longer be revoked by a participant or a third party.

Protection of transfer orders and multilateral netting in the Directive is supplemented by a general conflict of laws rule in Article 8, ensuring that the insolvent estate of a participant cannot, with reference to the otherwise applicable *lex concursus*, prevent the performance of the agreements that

²⁷ Third party shall be taken to mean e.g. the insolvent estate of a participant, if a participant is subject to an insolvency order before settlement has taken place.

²⁸ In addition, Article 7 of the Directive prohibits retroactive insolvency proceedings, i.e. "zero-hour" rules, which are not known in Danish insolvency law, for which reason no specific implementation thereof has taken place. Such rules were previously applied in a number of other member states and entailed that an insolvency order e.g. applied from the beginning of the day, i.e. midnight, rather than from the time when it was handed down, so that the estate could contest the validity of transfer orders settled in the intervening time.

²⁹ For further background information, see Peter M. Restelli-Nielsen, The Netting Provisions of the Securities Trading Act, Danmarks Nationalbank, *Monetary Review*, May 1996.

³⁰ The term "reversed in full" does not preclude, as in e.g. VP Settlement, cf. sections 3.1.1 and 3.1.3.3, that the system, on the basis of objective criteria laid down in advance, seeks to settle the transactions for which cover can be provided, while the remaining transactions are postponed for later settlement.

³¹ The Act does not stipulate further requirements as to content, but from the explanatory notes it is clear that the agreements are assumed to be standard agreements prepared by the individual system and accepted by participants, which is also the case for both VP Settlement and the Sumclearing, cf. sections 3.1.1 and 3.2.1, respectively.

the insolvent participant has concluded with the system. In such case the legislation (insolvency legislation)³² governing the system applies³³. Article 8 is implemented in STA s. 57e.

This combination of harmonisation and a general conflict of laws rule helps to ensure legal clarity in this field. In the area of insolvency legislation, which is traditionally an area of national competence, the EU has often chosen to solve cross-border issues solely by introducing conflict of laws rules. An example outside the financial area is regulation 1346/2000/EC (the Insolvency Regulation), which entered into force in all EU member states except Denmark on 31 May 2002³⁴. By and large the Regulation does not affect substantive insolvency law, but rather regulates the applicable law in connection with cross-border insolvency cases. Pursuant to the single-market provision in Article 47(2) of the EC Treaty, two directives have been introduced in the financial area, directive 17/2001/EC on the reorganisation and winding-up of insurance undertakings and directive 24/2001/EC on the reorganisation and winding-up of credit institutions (the winding-up directives), which must be implemented in national law by respectively 20 April 2003³⁵ and 5 May 2004³⁶. Like the Insolvency Regulation, these Directives regulate aspects in relation to procedure and applicable law for cross-border insolvency cases. Neither the Insolvency Regulation nor the winding-up directives thus comprise direct substantive harmonisation of national rules on e.g. avoidance provisions. This is the case for the Financial Collateral Directive, which, on the other hand, does not include a conflict of laws rule corresponding to Article 8 of the Settlement Finality Directive.

Under Article 10 each member state must specify and notify the European Commission of the systems to be included in the scope of the Directive, and in their national implementation the member states must ensure mutual recognition of other member states' registered and thus protected systems³⁷. This notification obligation is implemented in STA s. 57d in that the Danish Financial Supervisory Authority must, under subsection 1, issue an executive order listing the approved systems in Denmark³⁸, and under subsection 2 the Authority must notify the European Commission of these systems. Both VP Settlement and the Sumclearing are notified systems.

3. Description of VP Settlement and the Sumclearing

3.1. VP Settlement

3.1.1 Contractual basis

The contractual basis for VP Settlement consists of bilateral participation agreements between the participants and VP, as well as a settlement agreement between VP and Danmarks Nationalbank that lays down the terms and conditions for cash settlement at Danmarks Nationalbank, and of Danmarks Nationalbank's documentation basis for monetary-policy instruments and settlement of payments in Danish kroner, euro, Swedish kronor and Icelandic kronur³⁹. The more specific

³² See also Preamble 17 to the Directive.

³³ This entails a major advantage in that a system must, in principle, only adapt its procedures and agreements to the insolvency legislation applying to the system.

³⁴ This regulation does not apply in Denmark since Denmark is subject to a derogation, and the European Commission has rejected a Danish request for a parallel agreement. Currently the Ministry of Justice has no plans to implement the Insolvency Regulation unilaterally in Danish law.

³⁵ See Executive Order No. 584 of 25 June 2003, which entered into force on 30 June 2003.

³⁶ See Executive Order No. 674 of 24 June 2004, which entered into force on 27 June 2004.

³⁷ In Denmark, mutual recognition has been implemented in STA s. 57(2) and s. 57e, 2nd sentence, according to which netting agreements and the conflict of laws rule in Article 8 of the Directive are, respectively, legally enforceable and apply to Danish participants in foreign securities settlement systems and payment systems that have been registered with the European Commission under Article 10 of the Directive.

³⁸ See the most recent Executive Order, No. 1157 of 13 December 2002.

³⁹ Hereinafter simply referred to as Danmarks Nationalbank's documentation basis. The documentation basis is available at www.nationalbanken.dk.

clearing and settlement rules are compiled in VP's clearing rules⁴⁰, which constitute an integral part of the participation agreements⁴¹.

VP Settlement comprises several different types of participant⁴², since certain participants, typically banks, can report transactions both on their own behalf and on behalf of customers. The following is based on the latter participants. The key access requirements are as follows:

- The participant must be either a securities dealer⁴³, a clearing centre⁴⁴, the Danish Financial Administration Agency or Danmarks Nationalbank, cf. the full list in STA s. 54(2).
- The participant must be connected to VP's registration business, cf. STA title IV on registration⁴⁵.
- Unless the participant is not itself responsible for payments⁴⁶, the participant must hold a current account and a VP settlement account with Danmarks Nationalbank and be connected to KRONOS⁴⁷. In the following, it is assumed that the participant is responsible for payments.
- The participant must meet VP's technical requirements.

The participation agreement includes a netting agreement⁴⁸, which applies to all participants. The wording of the netting agreement is as follows: "Securities transactions which prior to the participant's bankruptcy, administration order or compulsory composition have been submitted to VP for settlement within the normal settlement cycle at VP and which according to this Agreement are binding on the clearing parties (i.e. cannot be unilaterally cancelled or revoked) shall be executed in accordance with VP's clearing rules."

Execution of a transaction requires that the participant in question has a line at Danmarks Nationalbank, cf. section 3.1.2, and that the relevant VP accounts contain securities as a minimum matching the participant's net positions in the settlement cycle. No attempt is made to execute

⁴⁰ VP's clearing rules are issued under STA ss. 52 and 54(4). The most recent version took effect on 22 December 2003. In accordance with STA s. 83(6) the Danish Securities Council has been notified of the rules.

⁴¹ VP's standard participation agreement and VP's clearing rules are available at www.vp.dk.

⁴² Own transactions may be submitted by major clients, cf. STA s. 62(4), foreign CSDs, cf. STA s. 63(1), market participants from EU member states or countries with which the EU has concluded cooperation agreements, provided that they are authorised to provide investment services in their home countries (i.e. have a "European passport") and market participants providing investment services from other countries than EU member states and countries with which the EU has concluded cooperation agreements, provided that they are subject to public supervision.

⁴³ Credit institutions, investment firms, mortgage-credit institutes or investment management companies, cf. STA s. 4.

⁴⁴ A limited liability company carrying out securities clearing business, cf. STA s. 7(1)(5). Securities clearing business shall be taken to mean regular business where clearing, settlement or clearing and settlement of securities transactions are carried out on behalf of a clearing participant, cf. STA s. 50(4).

⁴⁵ It is thus a prerequisite that a participant that is an account controller can manage its own and any customers' VP accounts and is thus entitled to submit transactions for registration in VP. The role of account controller is described in more detail in STA part 21 (ss. 62-65) and Executive Order No. 1146 of 15 December 2003 on registration, etc. of securities in a CSD.

⁴⁶ A participant may opt to be responsible for settlement only and thus not for payments. In that case the participant must conclude an agreement with a participant that is responsible for payments and thus can act as primary cash provider for the participant. This simply means that the participant acting as primary cash provider makes settlement liquidity available to other participants, and consequently this participant's account at Danmarks Nationalbank is not only debited with the payments made by the participant on behalf of itself and any customers, but also with payments managed by that participant on behalf of other participants.

⁴⁷ This is a consequence of cash settlement taking place via accounts at Danmarks Nationalbank. The terms and conditions are stated in Danmarks Nationalbank's documentation basis.

⁴⁸ The Danish Financial Supervisory Authority has been notified of this agreement.

transactions with a participant that have not been irrevocably submitted for settlement before the participant in question is subject to an insolvency order, etc.

- *All participants have thus concluded netting agreements meeting the requirements of STA s. 57, inter alia stipulating objective criteria for when irrevocable transactions are executed, cf. VP's clearing rules.*

If the check for adequate cover in terms of, respectively, cash and securities for a participant is negative, VP's clearing rules lays down "elimination rules" under which VP is entitled to seek to execute the transactions for which adequate cover can be provided, while the remaining transactions are postponed until the subsequent net settlement cycle⁴⁹.

The issue of whether the insolvent estate of a participant can make cash or securities available with a view to execution, in part or in full, of irrevocable transactions submitted by the insolvent participant is discussed in section 5.

For foreign participants, documentation is required in respect of contractual capacity and authority to bind the enterprise/power of attorney under the legislation of the home country⁵⁰, and for participants that are resident in countries which have not implemented the Settlement Finality Directive⁵¹ a legal opinion is required documenting that if the participant is insolvent VP's rules on clearing and settlement, including on netting and postponement of transactions, are still enforceable vis-à-vis the participant and its estate under the legislation of the country in question⁵².

VP is liable to participants for delays or errors that are attributable to VP. VP's liability is limited to remedying the problem, i.e. performing delivery or correcting the error, and VP is thus not liable for consequential losses, including compensation for any amounts paid by the participant to third parties (typically its customers)⁵³.

Likewise, Danmarks Nationalbank has limited its liability vis-à-vis participants to remedying any problems – i.e. performing the necessary registrations and validations – where Danmarks Nationalbank is responsible for delayed or incomplete registration of the book-entry basis received from VP in relation to cash settlement.

3.1.2 Collateral, liquidity and cash settlement at Danmarks Nationalbank

One of Danmarks Nationalbank's key functions in relation to payment systems is to undertake cash settlement for the Sumclearing and VP Settlement⁵⁴. In that connection, Danmarks Nationalbank

⁴⁹ As stated in section 2, this is not contrary to STA s. 57, although STA s. 57 says "reversed in full".

⁵⁰ In international company law, the national legislation that is applicable to a company's internal legal matters and to some extent to its relationship with third parties, is referred to as the company statute. There are two main theories in this area: the incorporation theory and the head office theory. In Denmark the former is by far the most prevalent. For further information about international company law, see e.g. Peter Arnt Nielsen, *International privat- og procesret* (International private law and procedural law – in Danish only), 1997, chapter 46 with references.

⁵¹ The EEA countries, Norway, Iceland and Liechtenstein, implement all single market directives, including the Settlement Finality Directive, in national legislation on a par with EU member states.

⁵² The latter legal opinion can be provided as a general opinion relating to a specific country, or on a participant-by-participant basis.

⁵³ In relation to its registration activities, VP is liable for erroneous registrations that cannot be corrected, in accordance with the relevant legal provisions, cf. STA part 24 (ss. 77-82a), particularly s. 80. This liability also extends to accidental errors.

⁵⁴ Both Recommendations for Securities Settlement Systems, November 2001, Recommendation 10, and Core Principles for Systemically Important Payment Systems, January 2001, Core Principle VI state that cash settlement should take place in central-bank money, i.e. as claims on a central bank, which is the case for both VP Settlement and the Sumclearing. If this is not the case, the system must make special provisions to minimise credit and liquidity risks.

makes intraday liquidity available against full collateral, primarily in securities listed on the Copenhagen Stock Exchange and registered with VP.

Danmarks Nationalbank has previously provided comprehensive descriptions of financial institutions' accounts at and pledging of collateral to Danmarks Nationalbank from an operational perspective⁵⁵, and likewise pledging of collateral to Danmarks Nationalbank has been discussed from a legal perspective in a separate article⁵⁶. This article solely describes the general principles of the settlement concept at Danmarks Nationalbank. For further details, reference is made to the articles in question⁵⁷.

Broadly speaking, the same overall concept applies to all systems that settle via accounts at Danmarks Nationalbank, cf. Chart 1. At specific times, participants in the Sumclearing and VP Settlement must have transferred liquidity from their current accounts⁵⁸ to special accounts, settlement accounts, dedicated to, respectively, the Sumclearing and VP Settlement. Since account holders are free to dispose of the funds in their current accounts, the settlement-account structure is necessary to ensure that Danmarks Nationalbank can vouch for the amounts allocated by participants for clearing and subsequent settlement.

On the basis of the balances in the settlement accounts, Danmarks Nationalbank notifies the systems of the participants' lines, and subsequently clearing takes place, provided that sufficient liquidity is available. When clearing has taken place, Danmarks Nationalbank is notified of each participant's net position, which is then entered to its settlement account. Sumclearing and VP Settlement transactions mainly take place overnight. After the overnight settlement cycles, the balances of the participants' settlement accounts are typically transferred to their respective current accounts and thereby released⁵⁹.

⁵⁵ See Financial Institutions' Accounts at and Pledging of Collateral to Danmarks Nationalbank, Danmarks Nationalbank, *Monetary Review*, 4th Quarter 2001, and *Monetary Policy in Denmark*, 2nd edition, Danmarks Nationalbank, 2003.

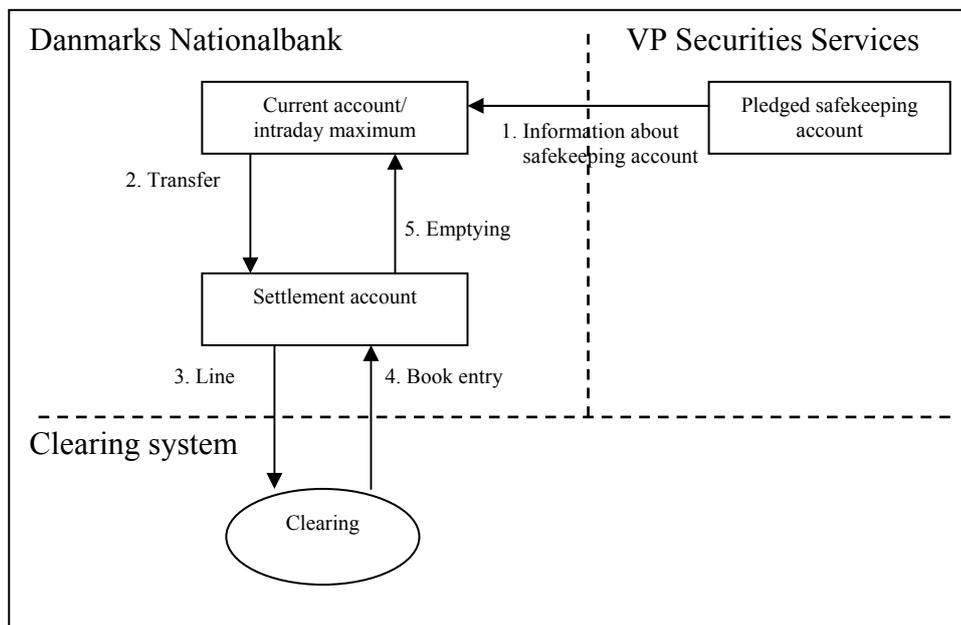
⁵⁶ See Niels C. Andersen and Kirsten Gürtler, Provision of Collateral to Danmarks Nationalbank in a Legal Perspective, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2003.

⁵⁷ The terms and conditions for pledging of collateral, liquidity and cash settlement are stated in Danmarks Nationalbank's documentation basis.

⁵⁸ The current account is the account holder's principal account at Danmarks Nationalbank, via which payments between account holders, and between the account holder and Danmarks Nationalbank, are transacted.

⁵⁹ Via KRONOS participants may deselect emptying of accounts after the overnight settlement cycles. In that case the accounts are emptied by 3.30 p.m. on the same day.

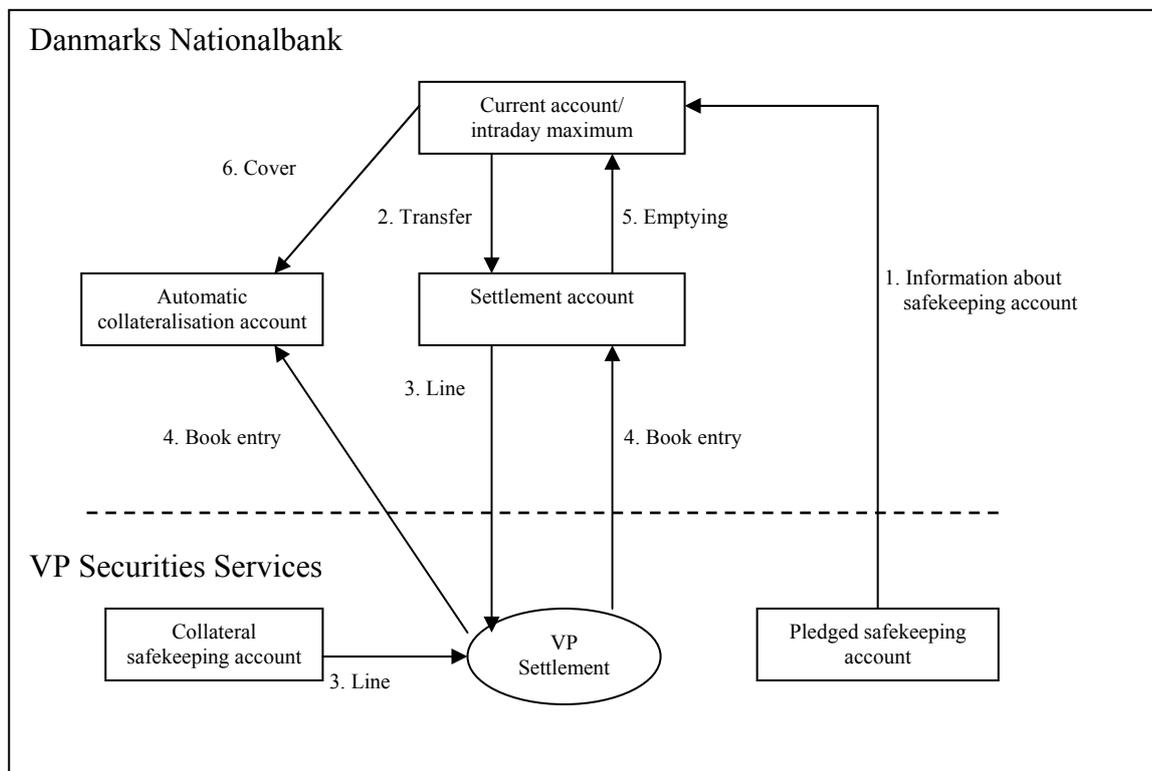
Chart 1. Danmarks Nationalbank's settlement concept



Under STA s. 55(1)-(4) a special procedure has been established for pledging of collateral in connection with settlement of securities transactions and payment systems – the so-called automatic collateralisation arrangement. An automatic collateralisation agreement between an account holder and Danmarks Nationalbank enables the account holder to obtain credit from Danmarks Nationalbank on the basis of securities in one or more designated VP accounts, typically the borrower's trading account. Unlike traditional pledging of collateral, automatic collateralisation does not bind specific assets in the VP account (collateral safekeeping account), and specification of the assets is not required until any collateral is maintained. As regards trading settlement in VP, automatic collateralisation facilitates settlement since it enables the borrower to pledge purchased securities as collateral for payment in the settlement cycle in which the securities are received. Under the traditional arrangement, securities cannot be pledged as collateral for settlement credit until later settlement cycles.

In connection with VP Settlement, the participants' total maximum line is the sum of the balance of the settlement account and the credit available under the automatic collateralisation arrangement. Settlement takes place if the net amount payable by a participant lies within this maximum. For entry of credit under the automatic collateralisation arrangement, each participant holds an automatic collateralisation account at Danmarks Nationalbank. Liquidity requirements in connection with VP Settlement are first covered via the automatic collateralisation account and then via the settlement account at Danmarks Nationalbank, and any net proceeds from settlement are first used to cover any credit under the automatic collateralisation arrangement, after which any surplus amount is transferred to the settlement account. Credit under the automatic collateralisation arrangement must be covered by 1.30 p.m. by transfer from the current account. The settlement concept for VP's trading settlement with automatic collateralisation is outlined in Chart 2.

Chart 2. Danmarks Nationalbank's settlement concept in relation to VP trading settlement



The monetary-policy day⁶⁰ in Danish kroner runs from 4.00 p.m. until the following day, the technical value date, at 3.30 p.m. In the period from 4.00 to 4.30 p.m. and from 7.00 a.m. on the following day until the end of the monetary-policy day at 3.30 p.m., participants can transfer liquidity to their settlement accounts⁶¹.

3.1.3 VP Settlement in Danish kroner

VP's clearing and settlement day, the VP day, is staggered in relation to the monetary-policy day and runs from 6.00 p.m. until the following day, the technical value date, immediately before 6.00 p.m. On each settlement day, VP runs four net settlement cycles for securities transactions in Danish kroner⁶², taking effect⁶³ at the following times:

Cycle 10	Cycle 20	Cycle 30	Cycle 40
6.00 p.m.	11.45 p.m.	6.00 a.m.	10.30 a.m.

⁶⁰ All payments within the monetary-policy day have the same value date.

⁶¹ Between 3.30 and 4.00 p.m., account holders cannot use their accounts in Danish kroner at Danmarks Nationalbank.

⁶² VP runs five net settlement cycles. Cycle 50, which takes effect at 1.35 p.m., settles in euro only, while cycle 40 settles in Danish kroner only. The remaining three cycles settle in both Danish kroner and euro.

⁶³ A trade for settlement in a net settlement cycle has been finally and irrevocably settled when the settlement cycle in which the transaction is settled has been completed. The transactions take effect at the time determined for the settlement cycle. Such a designated time does not exist in relation to the Sumclearing, where transactions have been finally executed when Danmarks Nationalbank has accepted the book-entry basis received and entered the net positions, cf. section 3.2.3.

The first three overnight cycles correspond with two settlement cycles in EOC⁶⁴.

When Danmarks Nationalbank's RTGS system, KRONOS, is open for transfers in Danish kroner (currently between 7.00 a.m. and 3.30 p.m.), participants can settle individual transactions as gross transactions.

From 7.00 a.m., when KRONOS opens, until 10.00 a.m., participants can transfer extra liquidity for settlement cycle 40. The periods when extra liquidity can be transferred to settlement accounts (4.00 to 4.30 p.m. and 7.00 a.m. to 3.30 p.m.) combined with the scheduling of the individual settlement cycles entails that no extra liquidity can be transferred between cycles 10, 20 and 30. These three cycles are therefore seen as one settlement procedure where lines already submitted by Danmarks Nationalbank are automatically transferred to the next cycle, adjusted solely for the participant's net position in the preceding cycle.

STA contains special definitions of clearing and settlement, cf. s. 50(1) and (2). In practice, VP operates with even more processes as part of the exchange of services between the parties. The process can be broken down into four stages. The first stage is trading. The second stage is matching, i.e. ensuring consistency between the trading information submitted by the two parties. The third stage is clearing, i.e. compilation of obligations and rights and check for adequate cover (cash and securities). The fourth stage is settlement, i.e. exchange of cash and securities.

3.1.3.1 Trading

Securities registered at VP are, as a general rule, freely negotiable and can therefore in principle be traded freely. In practice, they are traded on a number of different trading platforms. Equities are primarily traded via the NOREX Alliance⁶⁵, which uses the Saxess trading system, while bonds have so far mainly been traded informally via the over-the-counter (OTC) market, i.e. by telephone. As from 4 November 2003, however, trading in government bonds in the primary market has taken place via an MTS platform, which is a trading system for government bonds⁶⁶.

The first step in the clearing of a securities transaction is to report the transaction in question to VP, i.e. "preadvice". Reporting of transactions concluded via the MTS platform is automated from the MTS system, while a Saxess participant can choose whether to report the transaction via the Saxess system or by the participant itself via its own system. In the OTC market, both parties must report the transactions to VP via their own systems.

3.1.3.2 Matching

When reporting has taken place, VP checks that the data submitted is consistent, i.e. matches the details. Matching criteria include checking for consistency in relation to the traded amount agreed, the choice of settlement date and any settlement cycle requested.

The parties may opt for any settlement date from the trading day, T+0, to T+365. The market convention is T+3.

If the match is positive, VP makes output data available to the parties and any other central participants in the settlement of the transaction in question. On the basis of this data, the parties can subsequently send confirmation, also called instruct. A transaction is not ready for settlement until

⁶⁴ These three cycles have been scheduled, *inter alia*, to service the securities link between VP and EOC, where the latter holds an omnibus account at VP. This link is described in section 4.

⁶⁵ The Copenhagen Stock Exchange is a member of NOREX along with the Stockholm Stock Exchange, the Iceland Stock Exchange and the Oslo Stock Exchange, and from 2004 also the Finnish NEX Integrated Markets, HEXIM.

⁶⁶ See Danmarks Nationalbank, *Danish Government Borrowing and Debt 2003*, chapter 9.

both parties to the trade have sent confirmation⁶⁷. The confirmation must state a validity period, i.e. the period during which the trade may be settled⁶⁸.

When both parties to a trade have sent confirmation with fully or partially coinciding validity periods, the transaction has been finally entered into the system and cannot be cancelled or revoked by the participant or by a third party⁶⁹. The transaction is thus ready for settlement.

- *For each individual transaction, the crucial moment when a transfer order has been finalised for VP Settlement, cf. STA s. 57c, is thus the time when the transaction is ready for settlement in VP's systems. For transactions to be settled on the same date, this time can vary by up to 365 days, cf. the flexibility in relation to choice of settlement date.*

3.1.3.3 Clearing⁷⁰

In connection with the various settlement cycles, VP performs checks to ensure that the seller has cover for the securities sold (securities check) and that the buyer has cover for payment for the securities (cash check). Both checks are performed on a net basis in accordance with the netting agreement concluded.

In the securities check, VP checks, on a net basis, whether the VP account stated by the seller contains sufficient securities with the traded securities ID codes to execute the sale reported. The check comprises not only the portfolio of these ID codes already registered with VP, but also any additions of these ID codes approved for the same settlement cycle.

In the cash check, VP checks, on a net basis, whether the buyer or the buyer's primary cash provider has adequate funds to pay for the securities purchases reported by the buyer. Any payments received for the buyer's approved sale of securities in the same settlement cycle are taken into account. The net position is checked against the buyer's line as submitted by Danmarks Nationalbank or against the amount that the primary cash provider has made available for the buyer in the settlement cycle in question. To this should be added any credit available under the automatic collateralisation arrangement.

If the check for adequate cover shows that a participant has inadequate cash or securities, VP's clearing rules include a number of "elimination rules", whereby VP is entitled to seek to execute the transactions for which cover is available, while the remaining transactions are postponed until the subsequent net settlement cycle. VP thus seeks to execute the highest possible proportion of the total settlement submitted for the settlement cycle in question, on the basis of objective criteria that have been laid down in advance.

It is sought to settle postponed transactions in the next settlement cycle. If the reporting by the participants allows, it will be sought to settle postponed transactions for up to five subsequent settlement days.

⁶⁷ Preadvice and confirmation (instruct) can be submitted jointly.

⁶⁸ The confirmations from the two parties to a trade must include fully or partially coinciding validity periods in order for settlement to take place.

⁶⁹ A third party could be e.g. the bankruptcy estate of a participant if a participant in a transaction is subject to an insolvency order before settlement has taken place.

⁷⁰ In many European securities settlement systems, the clearing function described is undertaken by a separate entity called a central counterparty (CCP). A CCP acts as an intermediary between the buyer and the seller, whereby the risk on the counterparty is replaced by a risk on the CCP, and the transactions are often anonymised. Typically a distinction is made between two types of CCPs. One only acts as a counterparty in the actual transaction, while the other also undertakes the actual clearing and settlement function. STA s. 50(4) explicitly allows a clearing centre acting as a CCP to step in as a party to a transaction to ensure its execution. At present the Danish market participants have no wish for such a facility, which would also entail higher costs, i.e. the premium for taking on the counterparty risk.

3.1.3.4 Settlement

When a settlement cycle has been completed, VP notifies Danmarks Nationalbank of the participants' net positions in the cash leg (book-entry basis). Danmarks Nationalbank performs its own check for adequate cover and a receipt is sent to VP. Danmarks Nationalbank is then responsible for registering the net positions on the participants' accounts at Danmarks Nationalbank. In other words, Danmarks Nationalbank enters the payments to the participants' settlement accounts and any automatic collateralisation accounts, and VP enters the transactions to the relevant VP accounts. After this the settlement is final, and the registration takes effect at the same time for all transactions, which are deemed to have been executed at the times stated in section 3.1.3 for the individual settlement cycles.

3.2. The Sumclearing

3.2.1 Contractual basis⁷¹

The contractual basis for the Sumclearing comprises bilateral participation agreements between the participants and the Danish Bankers Association, and a settlement agreement between the Danish Bankers Association and Danmarks Nationalbank specifying the terms and conditions for cash settlement at Danmarks Nationalbank, as well as Danmarks Nationalbank's documentation basis⁷². The clearing and settlement rules are specified in the *Håndbog for Betalingsformidling* (Payment systems manual – in Danish only) published by the Danish Bankers Association, cf. the participation agreement⁷³.

Participants⁷⁴ in the Sumclearing must fulfil a number of access requirements, the most important of which are as follows:

- The participant must be a Danish or foreign bank, and the latter must, via a branch or via cross-border activities, have operations in Denmark and be subject to supervision either in Denmark or by an approved supervisory body in the home country⁷⁵.
- The participant must participate in electronic clearing, PBS clearing or both⁷⁶.
- The participant must hold a current account and a Sumclearing account at Danmarks Nationalbank and must be connected to KRONOS⁷⁷.
- The participant must meet the technical and administrative requirements laid down by the Danish Bankers Association at any time.

⁷¹ See STA s. 57a (2) on the requirements of the contractual basis if the payment system, like the Sumclearing, is to be registered under STA s. 57a (1).

⁷² The documentation basis is available at www.nationalbanken.dk.

⁷³ The Danish Bankers Association's standard participation agreement and *Håndbog for Betalingsformidling* are not directly available, but can be ordered from the Danish Bankers Association. However, the documents are described in a number of publicly available reports, including Danmarks Nationalbank's Review of the Sumclearing in relation to Core Principles for Systemically Important Payment Systems, May 2002, which can be downloaded from www.nationalbanken.dk, under Tasks/Payment systems, and *Finansanalyse 13*, Pengeinstitutternes åbne infrastruktur (The banks' open infrastructure – in Danish only), Danish Bankers Association, September 2001, which can be downloaded from the Danish Bankers Association's website, www.finansraadet.dk.

⁷⁴ It is possible to participate indirectly in the Sumclearing via a direct participant.

⁷⁵ This is a slight simplification of the specific requirements.

⁷⁶ The more specific terms and conditions will not be discussed in this article.

⁷⁷ The reason is that cash settlement takes place via accounts at Danmarks Nationalbank. The terms and conditions are stated in Danmarks Nationalbank's documentation basis.

Each participant determines an upper limit for the individual payment transactions to be debited to the participant in the Sumclearing on the basis of electronic clearing. If a payment transaction exceeds this limit, it is not included in the Sumclearing, but must be settled manually via KRONOS outside the system⁷⁸. The purpose is to limit the risk that a participant is debited with excessive amounts in the Sumclearing primarily due to errors on the part of another participant.

The participation agreement includes a netting agreement⁷⁹ that applies to all participants, under which the net positions compiled are settled finally to the participants' accounts at Danmarks Nationalbank, irrespective of whether a participant is subject to an insolvency order, has filed for suspension of payments or has opened negotiations for a compulsory composition prior to final settlement but after the submission of sum data to PBS' sumclearing system, cf. section 3.2.3. It is a condition for settlement that the participant in question has a line at Danmarks Nationalbank that, as a minimum, matches the participant's net debit amount, cf. section 3.2.2. Sum data for a participant that are supplied to PBS' sumclearing system after the participant in question is subject to an insolvency order, etc. is not settled finally, but is reversed in full.

- *All participants have thus entered into a netting agreement that meets the requirements of STA s. 57, inter alia because it contains objective criteria for when claims submitted by a participant are settled finally and when they are reversed in full.*

If a comparison of the compiled net positions with the individual participants' lines at Danmarks Nationalbank prior to cash settlement shows that a participant's line is below the amount to be debited to the participant's account, all sum data for the participant in question is reversed in full and the Sumclearing is then executed without this sum data.

Under the participation agreement, the above does not prevent the conclusion of a separate agreement on extraordinary payment settlement with the insolvent estate of a participant, or a repeat of the cash settlement with the participant in question if the necessary funds become available⁸⁰.

When concluding participation agreements with foreign participants, the Danish Bankers Association may require not only documentation for contractual capacity and authority to bind the enterprise/power of attorney under the legislation of the home country, but also documentation that the netting provision would be enforceable vis-à-vis the insolvent estate and creditors of the foreign participant⁸¹.

The Danish Bankers Association is liable vis-à-vis participants for errors and delays in connection with the Sumclearing. However, this liability is limited to the claim that the Danish Bankers Association can raise against PBS and Danmarks Nationalbank, respectively. PBS has limited its liability to direct losses with an upper limit of kr. 10 million per claim event, while Danmarks Nationalbank has limited its liability to remediation – performing the necessary registrations and validations – where Danmarks Nationalbank is the cause of delayed or incomplete registration of the book-entry basis received from the Danish Bankers Association/PBS.

3.2.2 Pledging of collateral, liquidity and cash settlement at Danmarks Nationalbank

To participate in the Sumclearing, the participant must hold a current account and a Sumclearing account at Danmarks Nationalbank and be connected to KRONOS, cf. section 3.2.1.

⁷⁸ A specific procedure has been laid down for manual execution of such payments.

⁷⁹ The Danish Financial Supervisory Authority has been notified of this agreement.

⁸⁰ See section 5 concerning the administrator of the bankruptcy estate's scope and its consequences.

⁸¹ Assuming that the Settlement Finality Directive has been correctly implemented in the EU member states and EEA countries, this is primarily relevant for foreign participants incorporated outside the EU and the EEA.

Danmarks Nationalbank's provision of intraday liquidity against collateral and its handling of cash settlement are described in section 3.1.2 in connection with VP Settlement. The concept is generally the same for the Sumclearing, so that reference is made to section 3.1.2.

However, there is a difference in relation to use of automatic collateralisation under STA s. 55(1)-(4). Sumclearing and registration of collateral in VP under the automatic collateralisation arrangement take place in different systems, so that a participant in the Sumclearing is free to dispose of its securities portfolio in VP while the Sumclearing is running⁸². This means that extension of credit and registration of collateral cannot take place simultaneously with the Sumclearing settlement, but must take place prior to this⁸³. The practical model for implementation of automatic collateralisation in connection with payment settlement therefore entails that participants can raise credit some time prior to settlement, against registration of collateral under the automatic collateralisation arrangement.

In the Sumclearing the borrower does not know the exact credit requirement before settlement has taken place. In practice credit is therefore extended and collateral pledged under the automatic collateralisation arrangement on the basis of the expected requirement. The credit is debited to the participant's automatic collateralisation account and credited to the Sumclearing account (settlement account). When an aggregate settlement procedure has been completed, the exact credit requirement is known and the collateral under the automatic collateralisation arrangement is reduced to match the actual credit requirement for settlement. In the cash leg the automatic collateralisation account, i.e. the credit account, and the Sumclearing account are thus offset against each other. In the Sumclearing this typically takes place in the morning after the overnight settlement cycles, unless the participant has deselected set-off at this time. In that case it takes place when Sumclearing settlement has been finally completed, but not later than 1.30 p.m.

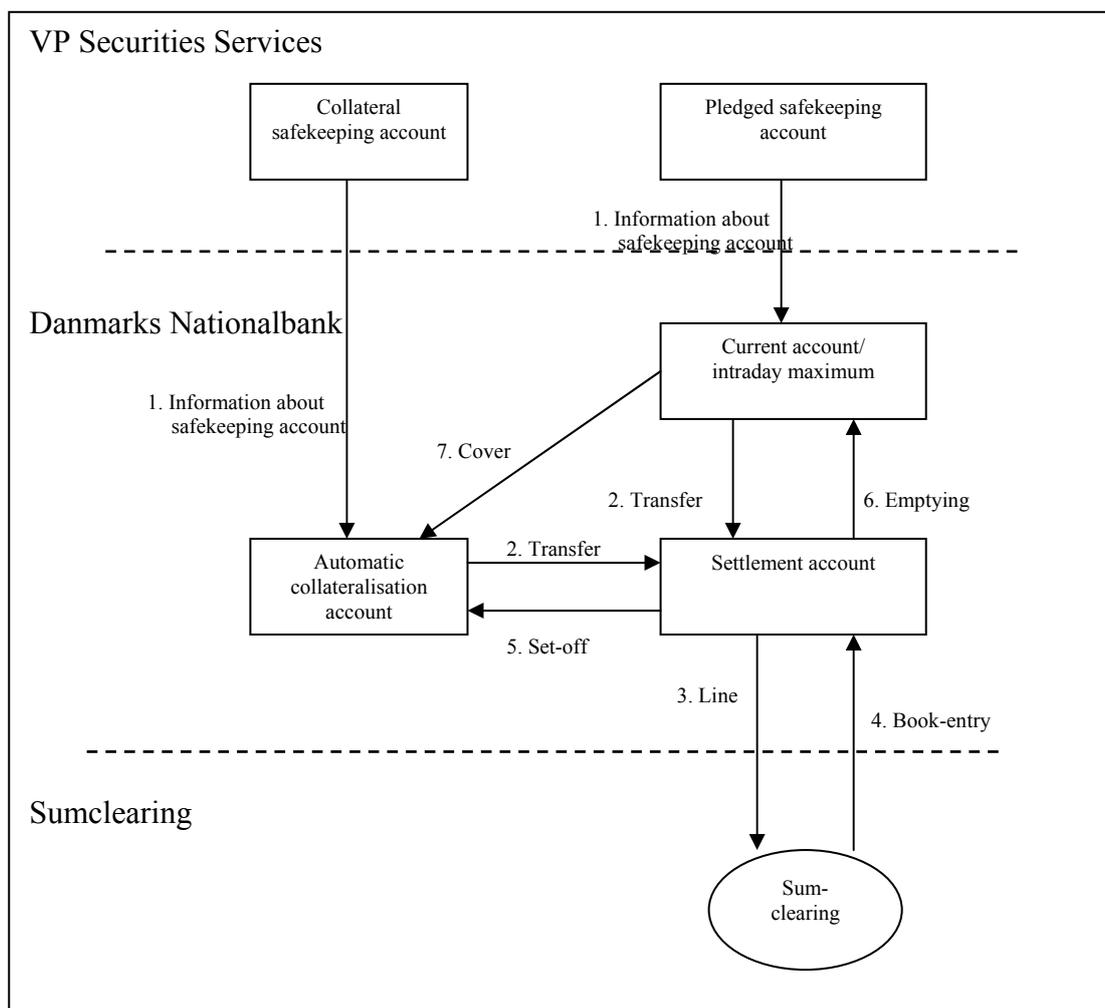
The same does not apply in connection with trading settlement in VP, where VP undertakes both settlement and registration of collateral under the automatic collateralisation arrangement. Settlement, determination of credit requirement and registration of collateral take place at virtually the same time and only up to the amount required for each settlement cycle.

The Sumclearing settlement concept is illustrated in Chart 3.

⁸² In connection with trading settlement in VP, the participants' VP accounts are blocked while settlement takes place to ensure that the net impact per securities ID code of the transactions settled can be registered to the relevant VP accounts without any changes having taken place in the intervening time.

⁸³ The same applies to VP's periodic settlements of e.g. interest, dividend and repayments, which are solely payment settlements.

Chart 3. Danmarks Nationalbank's settlement concept in relation to the Sumclearing



3.2.3 The Sumclearing in Danish kroner

The Sumclearing entries are generated on the basis of the two other clearing procedures: electronic clearing and PBS clearing⁸⁴, cf. the description in section 1.

The Sumclearing day runs from 4.30 p.m. until the following day, the technical value date, at 3.00 p.m.⁸⁵.

Like VP Settlement, the Sumclearing in kroner operates with 4 net settlement cycles, i.e. the 1st and 2nd normal settlement cycles and the 1st and 2nd extra settlement cycles. The two normal settlement cycles and the 1st extra settlement cycle take place between 1.00 and 6.30 a.m., while the 2nd extra settlement cycle must take place before 9.15 a.m. The 2nd extra settlement cycle lies within the opening hours of KRONOS⁸⁶. This allows participants to transfer extra liquidity for the

⁸⁴ For further information about PBS clearing, see *Håndbog for PBS-clearing* (PBS clearing manual – in Danish only) at www.pbs.dk/pi-materialer.

⁸⁵ This should be seen in relation to the monetary-policy day, which runs from 4.00 p.m. until the following day, the technical value date, at 3.30 p.m., cf. section 3.1.2, and the VP day, which runs from 6.00 p.m. until the following day, the technical value date, just before 6.00 p.m., cf. section 3.1.3.

⁸⁶ KRONOS is open from 7.00 a.m.

2nd extra settlement cycle. Finally, "on-demand" settlement cycles may take place later in the day if required.

The scheduling of transfers to a participant's settlement account (4.00 to 4.30 p.m. and 7.00 a.m. to 3.30 p.m.), together with the scheduling of the individual settlement cycles, entails that no extra liquidity can be transferred between the 1st normal, 2nd normal and 1st extra settlement cycles. These three settlement cycles are therefore seen as one settlement procedure in which a line once submitted by Danmarks Nationalbank is automatically transferred to the next settlement cycle, and only adjusted for the participant's net position in the preceding settlement cycle.

3.2.3.1 Normal settlement cycles

Each participant's IT centre must supply "sum data" concerning electronic clearing and PBS clearing to PBS' sumclearing system by 1.00 a.m. in order to participate in the 1st normal settlement cycle. Sum data is the compiled net positions between participants. To run the Sumclearing, PBS' sumclearing system in an approval run summarises the sum data supplied for each participant. After clearing, the net positions compiled are compared with the lines submitted by Danmarks Nationalbank for each participant. These lines must be available by 1.30 a.m. Subsequently the net positions for each participant are submitted to Danmarks Nationalbank for book-entry by 2.00 a.m.

Danmarks Nationalbank settles the clearing by entering the net positions received to the participants' Sumclearing settlement accounts at Danmarks Nationalbank. At the same time, notification is sent to PBS, which sends a standard status record, SSR, to the individual participants' IT centres informing them that the clearing has been settled for the participants in question. The IT centres can then reconcile the retail clearing and decide whether retail clearing is to be executed (book entered). This means that final book entry of participants' retail items does not take place until the overall net positions have been entered and Danmarks Nationalbank has submitted its approval, i.e. after the time when the Sumclearing is deemed to have been finally executed.

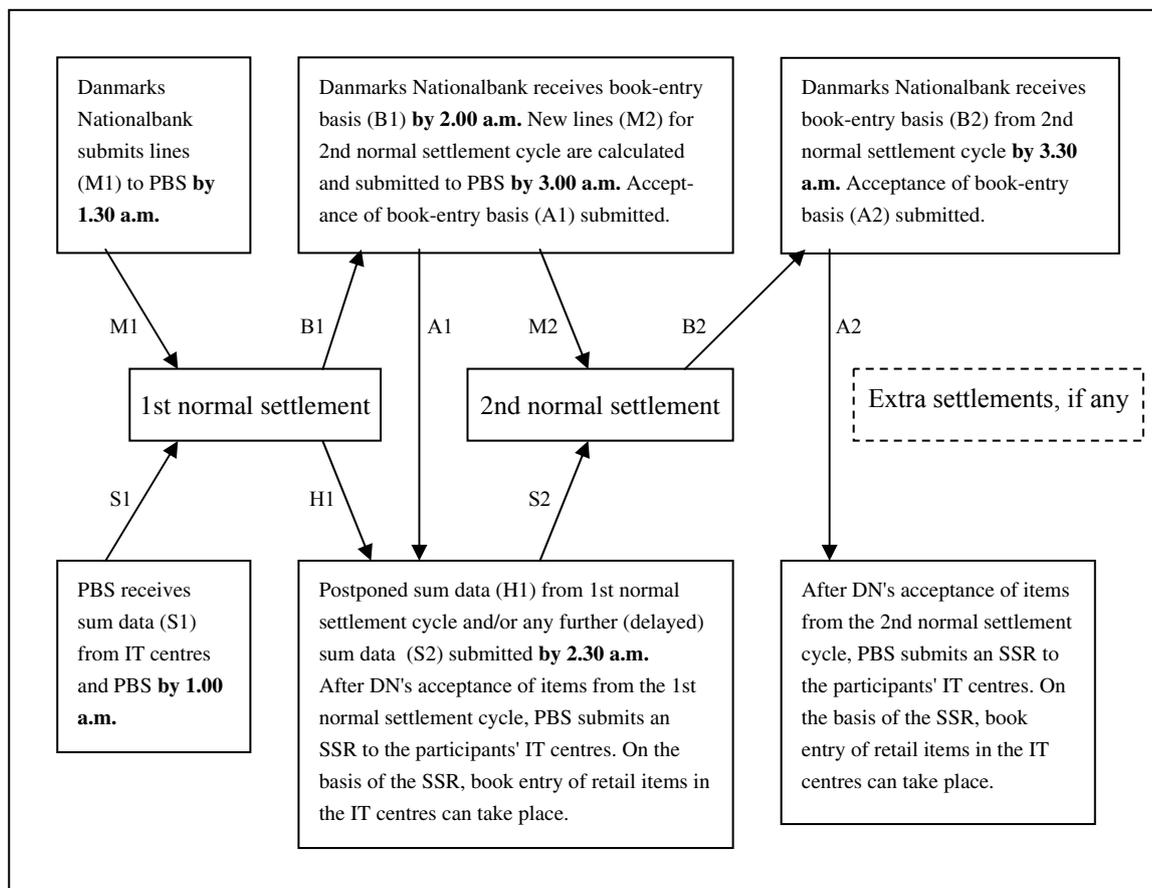
If one or more participants in the 1st normal settlement cycle have negative net positions that exceed their lines, the sum data relating to such clearing participant(s) is postponed for later settlement within the Sumclearing day in question. The net positions of the remaining participants are recompiled until all participants included in a calculation lie within the lines submitted.

At 2.30 a.m., if there is postponed sum data from the 1st normal settlement cycle and/or any further (delayed) sum data has been received, the 2nd normal settlement cycle is initiated. This cycle is executed according to the same principles as the first one. The postponed sum data is deemed to have been submitted anew at 2.30 a.m. Lines from Danmarks Nationalbank must be submitted by 3.00 a.m. Net positions must be submitted to Danmarks Nationalbank by 3.30 a.m.

After the 2nd normal settlement cycle, if there is no postponed or delayed sum data, the Sumclearing has been finally settled, and the lines are instantly released to Danmarks Nationalbank.

Chart 4 outlines the normal settlement cycles.

Chart 4. Normal settlement cycles in the Sumclearing in Danish kroner



Cancellation and redelivery of sum data may take place until 1.00 a.m. (1st normal settlement cycle) or 2.30 a.m. (2nd normal settlement cycle)⁸⁷. Sum data for a participant who has suspended payments or is subject to an insolvency order before these deadlines is rejected by the Sumclearing. In relation to the netting provision in the participation agreement, cf. section 3.2.1, sum data for PBS' sumclearing system is deemed to have been submitted immediately after the expiry of the above deadlines.

- *The deadlines for when a transfer order has been finally entered into the Sumclearing, cf. STA s. 57c, are thus 1.00 and 2.30 a.m., respectively, for the two normal settlement cycles⁸⁸.*

3.2.3.2 Extra settlement cycles

At 5.30 a.m., if there is postponed sum data from the 2nd normal settlement cycle and/or further sum data has been received since the last approval run, the postponed sum data is deemed to have been resubmitted at 5.30 a.m. for the 1st extra settlement cycle. By 6.00 a.m. new lines are received from Danmarks Nationalbank, and a new approval run is performed. The book-entry basis must be submitted to Danmarks Nationalbank by 6.30 a.m.

⁸⁷ Postponed sum data from the 1st normal settlement cycle need not be resubmitted, but they are not insolvency-resistant in the period from their postponement until 2.30 a.m., when they are deemed to have been resubmitted.

⁸⁸ It is atypical, but not impossible, that an insolvency order for a Sumclearing participant is issued between the start of the Sumclearing day at 4.30 p.m. and these settlement times. In that case, sum data for the relevant participant is rejected, cf. section 5.

Before the 2nd extra settlement cycle in the morning, participants can transfer liquidity to their settlement accounts if their sum data has been postponed owing to insufficient liquidity in the first three cycles (i.e. 1st and 2nd normal settlement cycles and 1st extra settlement cycle). This is possible between 7.00 and 8.45 a.m., after which Danmarks Nationalbank calculates new lines and submits them to PBS. No delayed sum data deliveries between the 1st and 2nd extra settlement cycles are included, and the postponed sum data is not deemed to have been resubmitted. Settlement must be completed and the book-entry basis submitted to Danmarks Nationalbank by 9.15 a.m.

- *The deadline for when a transfer order has been finally entered into the Sumclearing, cf. STA s. 57c, is thus 5.30 a.m. for the two extra settlement cycles*⁸⁹.

Finally, the Danish Bankers Association may decide to conduct on-demand settlement, comprising a further clearing and settlement cycle, e.g. if sum data from one or more IT centres is delayed.

4. VP's link to Euroclear

Under STA s. 63(1), foreign CSDs that are subject to public supervision may be connected to VP's registration system. Based on STA s. 54(3)⁹⁰ VP has determined that foreign CSDs may also participate in VP's clearing and settlement system⁹¹.

Like all other resident and non-resident participants, a CSD connected to VP as a foreign CSD is subject to STA and any provisions issued pursuant to STA. VP undertakes administrative functions for the foreign CSD.

Euroclear, EOC, is connected to VP via a direct link. This means that EOC has opened an omnibus account at VP, i.e. a VP account in the name of EOC and on behalf of investors with securities accounts at EOC. EOC has also opened accounts at Danmarks Nationalbank so that EOC can participate in VP's settlement cycles on a par with other participants, as described in section 3.1.3.

Via EOC's omnibus account, Danish securities can be "transferred" electronically to Belgium⁹², i.e. when EOC has been registered as the owner of a security in a VP settlement cycle, EOC can, in a subsequent EOC settlement cycle or on an RTGS basis, transfer the security to an investor using EOC as an intermediary. Subsequently, Belgian property law applies⁹³.

Holding securities via several intermediaries involves a number of legal issues. An investor purchasing or selling Danish securities registered with VP via EOC must – in addition to the usual conditions for participation in a securities settlement system such as EOC – consider the consequences if e.g. VP is subject to an insolvency order. In that case it is crucial that EOC has a secured claim in respect of EOC's omnibus account at VP, which without doubt can be confirmed since Danish property law applies, cf. the direct ownership of securities registered in a VP

⁸⁹ For these settlement cycles it is also atypical, but not impossible, that an insolvency order concerning a Sumclearing participant is issued between at 4.30 p.m., the start of the Sumclearing day, and 5.30 a.m. In that case, sum data for the relevant participant is rejected, cf. section 5.

⁹⁰ The 2nd sentence of this provision states that VP can determine that others, i.e. other entities than the potential participants listed in the Act, cf. STA s. 54(2), may enter into a participation agreement.

⁹¹ See VP's clearing rules.

⁹² As stated in section 1.2, this is a one-way link, i.e. Danish securities registered with VP can be electronically "transferred" to EOC and back, while securities issued by or registered with EOC cannot be transferred to Denmark since VP does not hold an omnibus account at EOC. For a more detailed description of "transfer" of dematerialised securities, see Ulrik Rammeskov Bang-Pedersen, *Internationale aspekter af insolvens- og tingsretten* (International aspects of insolvency and property law – in Danish only), 2002, section 6.1.

⁹³ This follows from the principle underlying the conflict of laws rule in Article 9.2 of the Settlement Finality Directive and Article 9 of the Financial Collateral Directive, cf. section 2. Belgian law therefore governs issues such as the legal nature of the security, the relevant act of perfection, ranking vis-à-vis other rights holders and realisation of the assets in the event of default. Since EOC is based in Belgium, which has implemented the Settlement Finality Directive, VP does not require a legal opinion to ensure that VP's clearing rules are enforceable vis-à-vis the potential estate of EOC in insolvency, cf. section 3.1.1.

account as described in section 1.1. If EOC is subject to an insolvency order, it is crucial whether EOC has ensured sufficient individualisation of the investors' securities so that the investors can claim their title to the securities in EOC's omnibus account at VP vis-à-vis the estate of EOC. This is presumably governed by Danish substantive law, i.e. the interpretation of s. 72(3) and (7) of the Financial Business Act, cf. Ulrik Rammeskov Bang-Pedersen, *Internationale aspekter af insolvens- og tingsretten* (International aspects of insolvency and property law – in Danish only), 2002, section 6.3. Furthermore, an investor in EOC should consider whether there is any risk that an EOC creditor can convince a judge in an enforcement court that execution should be levied against EOC's VP account in Denmark. The answer is bound to be no since Danish substantive law, cf. the above, recognises the omnibus account construction. In principle the securities in EOC's omnibus account do not belong to EOC therefore, but to the EOC participants holding Danish securities via the link. A fourth and more complex issue is then whether an EOC participant's creditors can levy execution against EOC's omnibus account at VP, i.e. "upper tier attachment", as regards the EOC participant's share of the securities in the omnibus account, even though the title to the securities follows from registrations with EOC and is governed by Belgian law⁹⁴.

The link supports automated settlement of transactions between VP participants and EOC participants, and thus their respective custodian customers, without loss of value days. Below, only the interaction between VP Settlement and EOC is described; clearing and settlement in EOC will not be discussed⁹⁵.

Reporting and matching of transactions for settlement via the link to EOC take place according to the same guidelines as reporting of other transactions, cf. section 3.1.3. Transactions with EOC participants are included in VP's settlement cycles in the same way as other transactions, since EOC is merely a counterparty on behalf of the EOC participants⁹⁶.

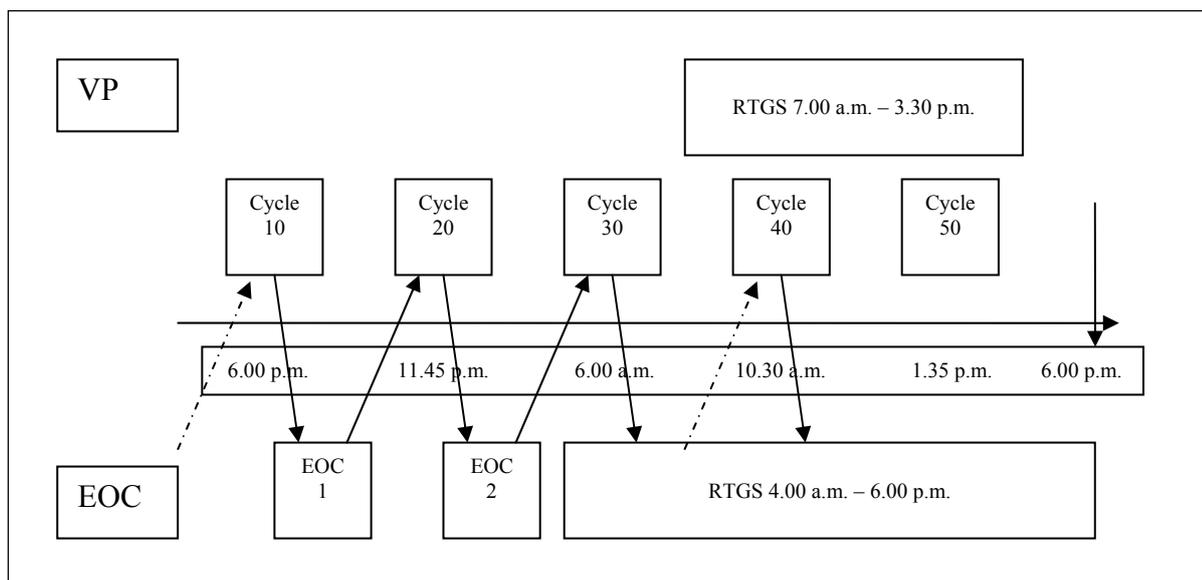
Chart 5 below shows the relation between the settlement cycles of VP and EOC for net settlement.

⁹⁴ See section 1.1 on UNIDROIT's and the EU's initiatives to establish clear rules in this area. At present legal opinions are often obtained. This can be done on establishment of a link by the CSDs involved, who have an interest in the legal soundness of the link, or by the users of a link. The ESCB is an example of the latter in that the ESCB regularly performs assessments of links established in the EU on the basis of the ESCB's 9 user standards, Standards for the use of EU Securities Settlement Systems in ESCB Credit Operations, January 1998, see www.ecb.int, in which connection legal opinions are typically obtained. Standard 1 relates to legal soundness. The Eurosystem will only accept securities as collateral via approved links. The ESCB's standards are about to be renewed against the background of the ESCB-CESR's work in this area, cf. section 1.1. In that connection the Eurosystem, as a user, is expected to accept as collateral securities held via relayed links, i.e. links with no direct connection between the investor CSD and the issuer CSD, such as the link from VP to EOC, but where transactions are exchanged via a third CSD acting as an intermediary. This expectation is based on the fact that Standard 19 of the ESCB-CESR's proposed new standards for securities settlement systems contains a specific reference to relayed links.

⁹⁵ EOC uses another method for clearing and settlement than VP, since net settlement is not applied. Transactions in the settlement cycles are settled as gross transactions according to a special method. Like VP, EOC has been registered with the European Commission and is thus protected by the Belgian legislation implementing the Settlement Finality Directive. EOC's Terms and Conditions and Operating Procedures of the Euroclear System are not directly accessible via its website, www.euroclear.com, but require special access.

⁹⁶ How EOC ensures the presence of the cash required for a purchase when entering the transaction in EOC after VP Settlement, or the presence of the securities required for a sale when entering the transaction in EOC after VP Settlement, will not be discussed. However, EOC's risk is limited, since although EOC does lay out the money for VP Settlement, it also receives the securities purchased, and upon sale EOC likewise releases the securities but also receives the proceeds. Consequently a participant may hedge the EOC's risk via margin collateral. Alternatively, securities or cash may be blocked at EOC until VP Settlement is final, after which EOC can perform final book entry.

Chart 5. Settlement cycles of VP and EOC for net settlement



Prior to VP's first settlement cycle, cycle 10, EOC transmits instructions to VP for purchase transactions with EOC participants and EOC performs cash checks on its participants. Sales transactions for EOC participants are also possible in cycle 10, but do not occur very frequently and require that the EOC participant already holds the securities traded.

After cycle 10, when EOC has received securities on behalf of EOC participants and laid out cash for these securities, the securities can be included in EOC's first settlement cycle, EOC 1.

In EOC 1 the EOC participants' Securities Clearing Accounts are credited and their Cash Accounts debited. In EOC 1, EOC participants can thus trade back-to-back against VP, i.e. purchase and sell the same security within the same value date.

After EOC 1, EOC can transmit securities deliveries for VP's cycle 20, for which cover has been established in EOC 1. In cycle 20, VP participants can thus trade back-to-back against EOC.

After VP's cycle 20, VP transmits deliveries of securities and payments for securities, so that the transmissions are included in EOC's 2nd settlement run, EOC 2. EOC 2 thus offers EOC participants their second opportunity to trade back-to-back against VP.

- *From a legal point of view, the crucial issue for an EOC participant is thus that settlement takes place Delivery versus Payment, DvP, intraday⁹⁷. An EOC participant thereby incurs only a slight credit risk on EOC in the atypical event that EOC should e.g. be subject to an insolvency order during the night after VP's cycle 20, in which the EOC participant's sales have been executed via transfers from EOC's omnibus account at VP and the cash has been credited to EOC's settlement account at Danmarks Nationalbank, but before EOC 2 has been executed⁹⁸.*

⁹⁷ When purchasing a security registered with VP, an EOC participant thus experiences that settlement in EOC takes place DvP, since, prior to e.g. EOC 1, EOC has participated in VP's cycle 10 and received the security in question in exchange for cash. Likewise, the counterparty in VP experiences DvP in VP's cycle 10, in which the security is sold against simultaneous payment by EOC.

⁹⁸ In that case, the EOC's estate in insolvency would not hold sufficient securities with the securities ID code in question in its VP account to cover the EOC participants' registered portfolios at EOC, and the claim for the payment received would be a simple claim on the estate of EOC. Presumably Danish substantive law would govern whether sufficient

After EOC 2, EOC transmits deliveries of securities for VP's cycle 30, for which cover has been established in EOC 2, e.g. owing to a delivery from VP. Cycle 30 thus offers VP participants their second opportunity to settle back-to-back against EOC.

After cycle 30, VP transmits deliveries of securities and payments for securities. Deliveries from cycle 30 can be redistributed in EOC on an RTGS basis. Alternatively, the EOC participant is able to dispose of its securities in the EOC's next ordinary settlement cycle on the subsequent value date.

After cycle 40⁹⁹, VP transmits deliveries of securities and payments for securities. Deliveries from this cycle can – as described for cycle 30 – be redistributed in EOC on an RTGS basis. Alternatively, the EOC participant is able to dispose of its securities in the EOC's next ordinary settlement cycle on the subsequent value date.

EOC does not currently submit transactions for settlement in VP's cycle 50, which incidentally is solely a euro settlement cycle.

5. If a participant is declared bankrupt

The preceding sections described the functionality of VP Settlement and the Sumclearing, including cash settlement at Danmarks Nationalbank, and the existing netting agreements were outlined. In addition, the relevant points in time when a transfer order has been finally entered into VP Settlement and the Sumclearing were identified.

Subsequently it is interesting to analyse what would actually happen in, respectively, VP Settlement and the Sumclearing if a participant is declared bankrupt. Only a case of bankruptcy is considered, since the potential group of participants, cf. section 3.1.1 for VP Settlement and section 3.2.1 for the Sumclearing, are financial institutions that are not likely to suspend payments in practice as this would lead to lack of confidence among customers and increase the likelihood of the institution being declared bankrupt¹⁰⁰.

In the vast majority of cases, the insolvency order is handed down during the normal opening hours of the bankruptcy court and thus after the overnight VP Settlement and Sumclearing cycles. However, the Danish Insolvency Act does not include any restriction on the hours when the insolvency order can be handed down¹⁰¹. Therefore, the following also takes into account the situation where a participant is subject to an insolvency order during the night or in the early morning hours, although this situation is atypical¹⁰².

5.1 The Sumclearing

In the Sumclearing the main rule is very clear. If a participant is declared bankrupt before the deadline for delivery of sum data, the participant is not included in the Sumclearing. This prevents a

individualisation has taken place for investors to claim their titles vis-à-vis the estate, cf. the above, but the loss resulting from the shortage of securities with the securities ID code in question would presumably be distributed according to *lex concursus*, i.e. Belgian law, which would presumably be pro rata between holders of that securities ID code in EOC.

⁹⁹ EOC does actually transmit certain special transactions for cycle 40. This will not be discussed further.

¹⁰⁰ See the special rules on withdrawal of licences and winding-up for banks, mortgage-credit institutes, investment firms and investment management companies in the Financial Business Act, part 15 (pp. 236ff.).

¹⁰¹ Certain own petitions, e.g. an insolvency petition from the administrator in connection with the Danish Commerce and Companies Agency's compulsory winding-up of a limited liability company, cf. part 14, particularly s. 127(3), of the Danish Companies Act, are often processed outside normal office hours at "desk meetings", for which reason insolvency orders issued after e.g. 5.00 p.m. are not unusual.

¹⁰² Foreign participants may actually augment the risk that a participant is subject to an insolvency order outside the daytime hours, depending on the practice of the home country and any time zone differences.

situation where an insolvent participant's customer, who is to receive an amount, has a simple claim on the estate of the insolvent participant after settlement. By excluding the insolvent participant, the payment is not cleared and settled, and the customer may potentially receive payment by other means.

As described in section 3.2.3, the Sumclearing day starts at 4.30 p.m. and the deadlines for sum data and thus transaction finality in the normal settlement cycles are, respectively, 1.00 a.m. and 2.30 a.m., and for the 1st and 2nd extra settlement cycles 5.30 a.m. It will be atypical that a Sumclearing participant is subject to an insolvency order in the period from the start of the Sumclearing day until these deadlines. If a participant is subject to an insolvency order the next morning, this participant's customers must therefore accept the result of the overnight clearing and settlement¹⁰³, including having a simple claim on the insolvent estate¹⁰⁴.

This consequence can neither be said to be unreasonable for the customer, who voluntarily chose to have exposures with the participant that is now insolvent, or to be unnecessarily encumbering on or insurmountable for the estate, which draws a line in the sand after the overnight clearing and settlement. In addition, it is important that a system is designed to make it clear to participants what the legal and practical implications are if a participant is declared bankrupt, so that they can take their precautions.

If the Sumclearing is not complete after the two normal settlement cycles and the two extra settlement cycles, which must be completed by 9.15 a.m., further extra cycles may be executed during the day until the expiry of the Sumclearing day at 3.00 p.m. In that connection the Sumclearing participation agreement, as described in section 3.2.1, contains an interesting provision under which the administrator of the bankruptcy estate can enter into an agreement with the Danish Bankers Association for an extraordinary payment settlement cycle, in which the estate participates.

The provision might be used in a situation where the insolvency order was handed down at a time during the Sumclearing day which entails that the participant's sum data has been reversed¹⁰⁵. In that case the consequence of such an agreement would be that the insolvent participant's sum data, which has not been finally entered in the Sumclearing, is nevertheless to be executed after the insolvency order against the participant.

The provision must assume that the administrator ensures the necessary line at Danmarks Nationalbank. Since the sum data is actually an expression of retail transactions for the insolvent participant's customers, who have a claim on the estate in relation to ingoing payments, such claims may, based on the principle in s. 60 of the Danish Insolvency Act, be regarded as funds received by the estate after the insolvency order on behalf of a third party, where the estate must meet the claim as administrative expenses, cf. s. 93 of the Danish Insolvency Act¹⁰⁶.

¹⁰³ On a negative net position it is assumed that the line at Danmarks Nationalbank is sufficient. If this is not the case, a participant may transfer liquidity to its settlement account between 7.00 and 8.45 a.m., i.e. before the 2nd extra settlement cycle, after which Danmarks Nationalbank calculates new lines and sends them to PBS. If an insolvency order is handed down before 8.45, which is Danmarks Nationalbank's deadline for submission of lines for the 2nd extra settlement cycle, the insolvent participant will no longer have a line at Danmarks Nationalbank, irrespective of any positive balance of the settlement account. In that case the insolvent participant will be able to receive only a positive net position in the 2nd extra settlement cycle.

¹⁰⁴ For private individuals with smaller exposures, the risk is typically covered under the Act on a Guarantee Fund for Depositors and Investors, cf. Consolidated Act No. 656 of 7 August 2002 as amended and the related Executive Order No. 1015 of 11 December 2002 on the Guarantee Fund for Depositors and Investors. Cash contributions up to kr. 300,000 are covered.

¹⁰⁵ Presumably it would not make sense to use this provision in the subsequent or later Sumclearing day.

¹⁰⁶ If the administrator enters into such an agreement with the Danish Bankers Association for further settlement, this must be seen as accession to the existing contractual basis for the Sumclearing, cf. part 7 of the Danish Insolvency Act,

It is difficult to see any motivation for such an agreement on the part of the administrator if the above assumption is correct, since the amounts received will not accrue to the estate. At the same time, since the administrator must be assumed to ensure the necessary lines at Danmarks Nationalbank, outgoing payments for the insolvent participant's customers will be honoured by the estate¹⁰⁷. In addition, the administrator may potentially incur liability in damages vis-à-vis the other creditors, who will, all other things being equal, be worse off.

5.2 VP Settlement

If a participant in VP Settlement is declared bankrupt, a distinction must first be made between customer transactions¹⁰⁸ and own transactions. As described in section 3.1.1, a participant that can report transactions on behalf of a third party must be connected to VP's registration business as an account controller. STA s. 64(4) states that the participation agreement with VP to this effect shall lapse immediately if a participant is declared bankrupt. This means that none of the participant's customer transactions are executed, even if they are ready for settlement.

On the face of it, this might be seen to be contrary to the spirit of the Settlement Finality Directive, which is aimed at protecting the systems against the effects of a participant being declared bankrupt, since a number of transactions are not executed even though they are ready for settlement at the time of the insolvency order. However, two circumstances are significant in this context. Firstly, only customer transactions, and not the insolvent participant's own transactions, are excluded. Secondly, the consequence of still including the customer transactions in the VP Settlement would be that a private customer selling a security would find itself in the unfortunate situation that the ownership of a security registered with VP is replaced by a simple claim on the estate, since payment is often credited to an account with the insolvent participant¹⁰⁹.

If we turn our attention to the insolvent participant's own transactions, VP Settlement differs from the Sumclearing in that transactions can be finally submitted up to 365 days prior to the settlement date. In principle such transactions are protected by the Settlement Finality Directive. However, it is a fact that the majority of such transactions submitted for settlement after the insolvency order against the participant are not settled. There are three main reasons for this.

Firstly, the practical reason is that an insolvency order is typically handed down in the morning or at any rate during day, i.e. when the overnight settlement has been completed and the relatively small cycle 40 (at 10.30 a.m.) is the only settlement cycle remaining on the VP day in question, which runs until 6.00 p.m.

Secondly, one of the first activities of the administrator of the bankruptcy estate is typically to seize all the insolvent participant's liquid assets, i.e. both cash accounts at Danmarks Nationalbank and securities registered in VP accounts. This means that the insolvent participant can neither raise liquidity for purchasing securities¹¹⁰ nor make securities available for sale. The number of

but indirectly the insolvent participant also accedes to the customer agreements that can involve transactions cleared and settled in the Sumclearing since non-final transactions are actually executed after the insolvency order. Against this background it would seem reasonable and not unnecessarily encumbering on the estate to have to cover the claims on the estate arising from extraordinary settlement as administration expenses.

¹⁰⁷ These customers gain an advantage in that their deposits in the estate are reduced or fully converted into a liability vis-à-vis the estate if the payments have e.g. led to use of the customer's overdraft facilities.

¹⁰⁸ Customer transactions should be taken to mean transactions where the insolvent participant acts as account controller for a customer trading in its own name.

¹⁰⁹ As was the case for the Sumclearing, the risk for private individuals with small exposures is, however, typically covered by the Act on a Guarantee Fund for Depositors and Investors.

¹¹⁰ As stated in section 3.1.3, the overnight cycles (cycles 10, 20 and 30) are, however, seen as one settlement procedure in relation to the cash leg, i.e. a line already submitted by Danmarks Nationalbank is automatically transferred to the

transactions submitted that can actually be executed with the insolvent participant is therefore limited, despite the net settlement.

Thirdly, VP's clearing rules state that finally submitted transactions for a participant subject to insolvency are only included until 6.00 p.m. on the date of insolvency, i.e. until the expiry of the VP day, irrespective of whether the administrator of the bankruptcy estate has actively seized the insolvent participant's liquid assets. A line is thus drawn at the end of the VP day, which helps to ensure clarity as to what the legal and practical implications are if a participant is declared bankrupt, so that the other participants can take their precautions.

This naturally leads to an interesting issue regarding the administrator's scope. As described in section 2, one of the purposes of the Settlement Finality Directive is to prevent the administrator from adopting the transactions that have proved to be favourable and repudiating the rest, cf. part 7 of the Danish Insolvency Act. This does not immediately seem to prevent the administrator from choosing to make liquidity or securities available for VP settlement¹¹¹ since it is beyond the control of the administrator whether or not each of the transactions submitted is executed. This is determined by the "elimination rules" in VP's clearing rules.

It could be argued that the administrator thereby performs a kind of global cherry picking, but since this only applies until 6.00 p.m. on the date of insolvency and cycle 40 (at 10.30 a.m.) involves only small amounts, and it seems unlikely that the administrator so soon can gain an overview of whether or not each of the transactions irrevocably submitted by the insolvent participant for settlement on the date of insolvency is to the advantage of the estate, there is no immediate reason to assume that this option is not available to the administrator¹¹².

5.3 Automatic collateralisation

A theoretically interesting difference between the use of automatic collateralisation in VP Settlement and in the Sumclearing in connection with the insolvency of a participant should be highlighted.

Section 3.2.2 described the special automatic collateralisation arrangement in relation to the Sumclearing, whereby a participant, prior to the start of the Sumclearing, can reserve an amount, which is transferred to the participant's Sumclearing account (settlement account) at Danmarks Nationalbank, and the collateral is registered to the participant's collateral safekeeping account. In addition, the participant may transfer liquidity from its current account to the Sumclearing account in the usual manner. Section 3.2.3 further described how the 1st and 2nd normal settlement cycles and the 1st extra settlement cycle, if any, are seen as one settlement procedure, whereby a line already submitted by Danmarks Nationalbank is automatically transferred to the next settlement cycle, adjusted only for the participant's net position in the preceding settlement cycle.

next cycle, adjusted only for the participant's net position in the preceding cycle, irrespective of any insolvency order handed down in the intervening time.

¹¹¹ It must be assumed that the administrator thereby accedes to the contractual basis for VP Settlement, but in relation to the Sumclearing there is no problem concerning customer transactions, since customer transactions, although ready for settlement, are not executed, cf. the above.

¹¹² The question is how the administrator's active participation until 6.00 p.m. on the date of insolvency should be seen in relation to any bilateral final payment settlement provision between the insolvent participant and a counterparty, under which insolvency is a reason for final settlement, cf. STA s. 58h. The starting point must be that VP Settlement takes precedence, so that transactions executed in VP Settlement until 6.00 p.m. on the date of insolvency are not included in any final payment settlement, since they have been finally settled. The same applies if for some reason the administrator does not seize the liquid assets of the insolvent participant in the course of the day.

Consequently, an amount previously reserved for the Sumclearing under the automatic collateralisation arrangement is "rolled" forward between the 1st and 2nd normal settlement cycles and the 1st extra settlement cycle, irrespective of any insolvency order against the participant in the intervening time. Such a situation is, however, atypical since these cycles run overnight.

This differs from the use of automatic collateralisation for VP Settlement, where settlement, determination of the credit requirement and registration of collateral take place at virtually the same time and only up to the amount required for the settlement cycle, cf. section 3.1.2. In VP Settlement, cycles 10, 20 and 30 are seen as one settlement procedure in relation to the cash leg, cf. section 3.1.3, but any insolvency order in the intervening time, e.g. after cycle 10, but before cycle 20, in principle prevents the use of automatic collateralisation for cycles 20 and 30¹¹³, even if the insolvent participant's transactions have been finally submitted and execution thereof is accepted by the counterparty and the participant's estate¹¹⁴. Once again, an insolvency order would be atypical since these settlement cycles run overnight.

It is assumed that either Danmarks Nationalbank is aware of the insolvency order and thus no longer able to act on behalf of the estate in relation to automatic collateralisation, cf. ss. 29-30 of the Danish Insolvency Act, or a administrator immediately reports the insolvency order on the insolvent participant's VP accounts, including the collateral safekeeping account. Under VP's clearing rules, registration of restrictive rights to a collateral safekeeping account entails discontinuation of the automatic collateralisation arrangement.

¹¹³ See section 5.2 on the administrator's scope in VP Settlement, however.

¹¹⁴ A line already submitted by Danmarks Nationalbank on the basis of the insolvent participant's balance on its settlement account for VP Settlement is still automatically transferred to the next settlement cycle, adjusted only for the participant's net position in the preceding settlement cycle.

6. Literature and websites

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7. Glossary

Automatic collateralisation account	Account at Danmarks Nationalbank to which credit under the automatic collateralisation arrangement is debited.
Back-to-back transaction	Purchase and sale of the same security with the same value date.
CCP	Central counterparty, an entity that acts as an intermediary between the parties to a transaction, i.e. is the seller to every buyer and the buyer to every seller, whereby the parties' counterparty risk is replaced by a risk on the CCP.
Central-bank money	A simple claim on a central bank as the balance of an account with the central bank.
Clearing	Compilation of obligations and rights prior to an agreed exchange of services.
CSD	Central Securities Depository, an entity that safekeeps and administers securities and that enables electronic processing of transactions. A CSD may also undertake clearing and settlement.
Current account	An account holder's principal account at Danmarks Nationalbank, via which payments between account holders, and between the account holder and Danmarks Nationalbank, are transacted.
Custodian	Financial institution, typically a bank, that safekeeps and administers securities and other financial assets, and often also provides other services such as clearing and settlement.
Dematerialised security	Security that has been electronic from the outset, e.g. issuances directly in VP.
DvP	Delivery versus Payment, delivery of securities subject to payment at the same time.
Electronic/ book-entry security	Dematerialised or immobilised security, cf. the definitions of these.
Electronic clearing	Clearing of transactions in banks involving accounts with other banks, such as cheque and debit card transactions as well as inpayment forms. In electronic clearing, the banks' IT centres compile the participants' net positions vis-à-vis each other, which are then included in the Sumclearing.

FoP	Free of Payment, delivery of securities independently of any simultaneous payment.
ICSD	International Central Securities Depository, a CSD that clears and settles transactions in international securities and/or cross-border transactions in local securities, typically via links to local CSDs.
Immobilised security	Security where e.g. a physical global note held by a custodian is the basis for subsequent electronic registrations of ownership of this global note (physical, but immobilised).
Instruct	Confirmation, i.e. reporting to VP with reference to preadvice and statement of validity period. The validity period is the period during which the trade may be settled. This makes the reporting final, cf. STA s. 57c. Preadvice and instruct can be submitted jointly.
Intermediary	A legal entity, typically a custodian or CSD, that holds securities accounts on behalf of others, or both for itself and for others, and provides direct or indirect access to an issuer CSD.
Intra-day credit	Credit within the same day, i.e. borrowing and repayment take place on the same day.
Investor CSD	The CSD where a book-entry security is held by an investor.
Issuer CSD	The CSD where a book-entry security is issued or where a physical security is immobilised and registered electronically.
KRONOS	Danmarks Nationalbank's RTGS system for transfer of Danish kroner and euro between account holders' own accounts or to other account holders' accounts at Danmarks Nationalbank.
Monetary-policy day	The period during which payments have the same value date. In Danish kroner from 4.00 p.m. to 3.30 p.m. on the following day, the technical value date.
Netting	An agreement between two (bilateral netting) or more (multilateral netting) parties to offset their claims against each other to compile one net position.
Omnibus account	E.g. a VP account where the account holder holds securities for several persons.
PBS clearing	Clearing of transactions on the basis of PBS products, e.g. BetalingsService (direct debit) and Dataløn, as well as Dankort (debit card) transactions via terminals administered by PBS. In PBS clearing, PBS compiles the individual participants' net positions vis-à-vis each other, which are then included in the Sumclearing.

Preadvice	Reporting to VP of the data required for a transaction, including the counterparty to the transaction, securities ID code, nominal amount/number of securities, settlement date/time and possibly the traded amount and currency.
Relayed link	A link where there is no direct connection between an investor CSD and an issuer CSD, such as the link from VP to EOC, but where transactions are exchanged via a third CSD, which acts as intermediary.
RTGS system	Real-Time Gross Settlement system, a system where payments are settled to the participants' accounts individually and finally in real time.
Settlement	Exchange of services in fulfilment of the parties' obligations.
Settlement account	Account at Danmarks Nationalbank dedicated to the liquidity available to account holders for a specific cash settlement procedure at Danmarks Nationalbank.
SSS	Securities Settlement System, a system where securities and other financial assets can be held and transferred either Free of Payment (FoP) or Delivery versus Payment (DvP).
Systemic risk	The risk that a financial institution's non-fulfilment of its obligations when they fall due entails that other financial institutions are not able to meet their obligations on time.